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THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1.

Capital Cuts for Industry

IN our two previous issues we have dealt with the White Paper on capital investment largely from the viewpoint of the direct effect on the railways. Sir Stafford Cripps, Chancellor of the Exchequer, last weekend took the subject a stage further when he made an appeal to industry in general, asking for full co-operation in voluntarily curtailing expenditure on plant and machinery. His appeal was backed by the Federation of British Industries and the National Union of Manufacturers, and talks are to be held with the Trades Union Congress and the British Employers Confederation on the labour problems which must arise from the deferment of re-equipment. Sir Stafford Cripps pointed out that there were two ways of bringing about the necessary adjustment in industrial capital expenditure. One was to revert to the wartime practice of individual licensing and detailed control, and the other was for industry to scale down its demands to the new level of availability wherever this could be done without damage to the basic and export industries. The Government wished to avoid the first course, and it had been decided, therefore, to try the second. Although the major savings must come from the postponement of large projects of expansion and plant replacement, the large number of small items appearing in all plant inventories together make up a considerable part of the total investment. These also, therefore, should be carefully reviewed.

* * * *

Argentina's Transport Needs

News is still awaited of the ratification of the agreement under which Argentina is to purchase the British-owned railways, but meantime, reports suggest that the physical difficulties facing railway administrations in Argentina are very great. Recently *The Financial Times* published a series of articles from a special correspondent who had returned from a tour of Argentina. He reported that there was a prodigious expenditure to be faced in bringing the condition of the railways to the standard necessary to enable them to continue to function as the primary transport system of the country. As recently as the latter part of August the transport of grain to the Port of Bahia Blanca, which was designed to deal primarily with rail-borne traffic, was dependent almost entirely on road hauliers. One of the largest of the railways was reported to have 20 per cent. of its locomotives out of service, because of the inability to obtain material for repairs. It was evident that the stock still in service was being worked extremely hard and that heavy maintenance and renewal costs sooner or later would have to be faced.

* * * *

Uneconomic Working of the Lines

This correspondent reported also that there was little enthusiasm among traders for State railway ownership. It was realised that the heavy additions to the wages bill would necessitate the raising of the rates and charges by about 100 per cent. if the lines were to be self-supporting. It was also appreciated that since July, 1946, the railways had been worked for account of the Government, but it was less generally understood that, in the absence of permission to charge higher freights and fares, the receipts have long since ceased to cover working expenses. *The Financial Times* correspondent stated that the disbursements of one of the largest lines were reported to be 126 per cent. of the receipts, and if it were not for the heavy cash subsidies from the Central Bank it would not be possible to pay salaries and wages. He stated that one of the lines owed the Central Bank 19 million pesos, and debts on a similar scale had accrued and continued to increase in respect of all the lines.

* * * *

Home Railway Traffic Receipts

Receipts of the four main-line railway companies and the London Passenger Transport Board for the four weeks ended November 30 were the best which have been returned since publication of the traffics was resumed at the beginning of 1946. This was largely the result of the further increase of fares and freight charges which became effective on October 1 last, but, nevertheless, the latest total increase of £3,327,000 compares favourably with the previous return, which showed an advance of £2,963,000. In the last four-weekly period passenger revenue

at £13,741,000 rose by £523,000, and merchandise revenue at £9,835,000 was higher by £1,545,000. The improvement in revenue from the carriage of coal and coke was £1,259,000 at £5,567,000.

FOUR WEEKS ENDED NOVEMBER 30, 1947

	1947	1946	+ or −	Per cent.
	£000	£000	£000	+ or −
Passenger ...	13,741	13,218	+ 523	+ 3·9
Merchandise ...	9,835	8,290	+1,545	+18·6
Coal and coke ...	5,567	4,308	+1,259	+29·2
Total ...	29,143	25,816	+3,327	+12·8

AGGREGATE FOR THE 48 WEEKS OF THE YEAR

	1947	1946	+ or −	Per cent.
	£000	£000	£000	+ or −
Passenger ...	179,578	187,141	−7,563	− 4·0
Merchandise ...	90,038	97,319	−7,281	− 7·5
Coal and coke ...	51,960	46,601	+5,359	+11·4
Total ...	321,576	331,061	−9,485	− 2·8

Total traffic receipts for the 48 weeks at £321,576,000 are £9,485 below those for the similar period of 1946.

* * * *

Central Uruguay Railway Report

There was a decrease of £146,046 in the gross receipts of the Central Uruguay Railway Co. of Monte Video Ltd. for the year ended June 30, 1947, in spite of increases in rates and fares, and the withdrawal of certain rebates. Goods and livestock receipts were down by £120,000, or 10 per cent., the number of cattle carried falling to the lowest for over 30 years. Passenger traffic, on the other hand, produced £37,000 more, an increase of 10 per cent., but working expenses rose from £1,846,999 to £1,905,972, influenced by rising labour costs. The net receipts of £36,637 compared with £241,656 in the preceding year. The Chairman of the company, Brig.-General F. D. Hammond, comments on the results in a statement issued with the report. The loss of goods traffic, which provides a little over half the company's gross receipts, was due mainly to a revival of road competition. Road operators have cut their rates, profiting by the acquisition of new engines and tyres and consequently reduced bills for maintenance. An increase in the number of passengers, and in receipts from that source, was achieved in spite of competition and of a strike in May which lasted for three weeks. Another strike in November has involved the company in further wage increases decreed by the Government.

* * * *

Central Line Extensions into Essex

Public traffic began on Sunday last, December 14, on the new Central Line Tube Services to Newbury Park and Woodford, and there was a formal inauguration ceremony of more than usual interest two days earlier. The Minister of Transport (Mr. Alfred Barnes) made his first public appearance after his recent severe illness, and was widely congratulated on his recovery. At Wanstead Station, on the new tube line, he turned a golden key on the eastbound platform and swung open an 11-ft. golden gate across the track. The Minister was accompanied by Lord Latham, Chairman of London Transport, Sir Ronald Matthews, Chairman of the L.N.E.R., Sir Cyril Harcomb, Lord Ashfield, Sir William Wood, Mr. John Cliff, and more than 200 M.P.s, Mayors, trade union leaders, and other guests. The party then traversed the new tube to Newbury Park and returned to Gants Hill, where the station with its great low-level concourse was inspected. The inauguration reception was held in the Valentine Hotel, Gants Hill, where Lord Latham spoke of the "element of condign justice" which had now assigned to him the solution of transport problems he had helped to create through the housing activities of the L.C.C. He paid tribute to the L.N.E.R. for its pioneer work in the area and of coping strenuously with great odds.

* * * *

Ave Atque Vale

At the Central Line reception mentioned in the previous note, the Minister of Transport referred to the changeover to national ownership on January 1, and said that the change had not come about because the railways had failed in their task. The standard of conduct of our railways had been equal, if not superior, to that in any other phase of industry in this country or elsewhere. But, he added, within the conditions of modern transport there were certain advantages to be secured by pooling of receipts and centralisation of certain services. Sir Ronald Matthews said that, although there were various features of the North-East London Scheme of railway improvements yet to be completed, this ceremony was for his company virtually the end, and he felt that he could best summarise his position by saying *Ave atque Vale* (Hail and Farewell). The Great Eastern Railway had made strenuous efforts to serve the area adequately, and in doing so had introduced the most intensive suburban service of steam-operated trains in the world. The L.N.E.R. had co-operated closely with London Transport in the scheme of electrification and improvement, of which the works inaugurated that day were a part. With regard to the Leytonstone-Woodford line, which had been turned over to Central Line tube train operation, his company remained the freeholder for 19 days more. He wished every success to the British Transport Commission and its Executives, much as he deplored the compulsory change in ownership, and felt assured that railwaymen everywhere would render the same faithful service to their job in the future as in the past.

* * * *

The I.R.S.E. in Australia

It is with pleasure that we report in this issue the proceedings which took place on November 14, when an Australian Section of the Institution of Railway Signal Engineers was inaugurated in Sydney. Mr. W. F. Barton, Signal & Telegraph Engineer, New South Wales Government Railways, was elected Chairman, with Mr. J. B. Jacobson, of McKenzie & Holland, as Vice-Chairman, and delivered an opening address, the greater part of which we reproduce. The establishment of this section, which carries with it our warmest wishes for a successful future, has been due in great measure to the efforts made by the present President of the Institution, Mr. F. L. Castle, during his term of office, to awaken a greater interest in its work overseas. These are now producing an effect most gratifying to the Council. We notice Mr. Barton compared the activities of the Signal Section of the A.A.R. in America with those of the institution, and it may be as well to emphasise that the former is an official body, with a large revenue provided from official sources, whereas the Institution of Railway Signal Engineers is all but entirely dependent on the subscriptions of private individuals for its income, and is unfortunately considerably limited in what it can do by that fact.

* * * *

Experiences with the "Coronation Scot"

The "fun of the job" was the theme of Mr. R. A. Riddles' presidential address to the Junior Institution of Engineers on December 12, and he ably illustrated this idea with a number of personal experiences in the preparatory work for the L.M.S.R. "Coronation Scot" train and its running. Mr. Riddles related how, although a new train is no more than a passing novelty to many people, to those concerned with the planning and execution of the job, from its initial drawings to the running in service, alternating periods of considerable anxiety and jubilation are experienced before the triumph of a successful debut. The 1930-31 trade depression and road transport competition prompted a programme on the L.M.S.R., of which a feature was more trains, faster trains, and more attractive trains, and a notable step to securing this was the introduction of the "Princess Royal" class Pacifics in 1933, and at Crewe they worked literally day and night to have the prototype ready for the day fixed for inspection by the directors at Euston. A number of interesting experiences with the "Coronation Scot" in America show that, to overcome the difficulties experienced there, considerable adaptability and ingenuity were required to make the tour a success.

* * * *

Roller Bearing Progress in U.S.A.

There is ample evidence of the increasing use of roller bearings for all classes of rolling stock on American railways, and one firm alone announces orders in hand which will result in no less than 2,200 vehicles going into service with roller bearings in the U.S.A. in the near future. Of these, 400 are passenger cars for New York City, and 1,500 are new freight vehicles. But the remainder, consisting of 300 double-bogie

wagons for livestock, are conversions of existing stock, and are, perhaps, the most interesting of all, for they show clearly how easily conversions from plain journal to roller bearings can be made on existing bogies. Virtually the only alteration required is the enlargement of the dust-guard opening at the back of the existing axlebox. The Union Pacific is spending some $300,000 on the equipment of these wagons with roller bearings and steel wheels, and expects that as a result these vehicles will be used in future on much faster schedules in which the former journey times are almost halved, and stops for watering and feeding the livestock in transit are eliminated. With the appearance recently of the American type of cast-steel bogie side-frames in this country, the ease of providing such equipment with roller bearings, in place of the ordinary plain type, assumes a new interest. The remarkable freedom of such bearings from overheating, and the fact that, with them, starting resistance is reduced by about 90 per cent., weigh heavily in their favour. Only the high cost as compared with the ordinary type remains as an obstacle to be overcome.

* * * *

Last G.M. of the G.W.R.

IF this journal had adopted an American practice and arranged a "Gallup Poll" to name the railway Chairmen, General Managers and Chief Officers most likely to be offered and accept positions on the British Transport Commission or its Railway Executive, we feel sure that Sir James Milne's name would have figured very high in the poll. Thus the recent announcement that he is retiring from the General Managership of the Great Western Railway on December 31 and will take no part in the new regime, caused considerable surprise and some consternation on the G.W.R. It is an open secret that he was offered but declined the Chairmanship of the Railway Executive. Why he declined we do not know, but in the absence of any statement there are many who will form their own conclusions. It cannot be on account of advancing years as he is 64 years young.

So Sir James Milne is the last of the eight General Managers of the Great Western Railway. We have met and remember all of them except the first. One characteristic of Sir James which we appreciate, as did most others who had occasion to meet him, was that you could get from him a quick "Yes" or "No." It used to be said that seven years of office killed any Great Western General Manager. As will be seen from the list of them for the 24 years from 1887 to 1921, which period saw five General Managers come and go, the dictum was not an exaggeration. But 18½ years of General Managership have not by any means killed Sir James. He is, to use an Americanism in the most complimentary sense, a "tough guy," as many have found who crossed swords with him concerning British railways in general and the Great Western in particular.

GENERAL MANAGERS

James Grierson	October, 1863—October, 1887
Henry Lambert	October, 1887—July, 1896
Sir Joseph Loftus Wilkinson ...	July, 1896—June, 1903
Sir James Charles Inglis	June, 1903—December, 1911
Frank Potter	January, 1912—July, 1919
Charles Aldington	August, 1919—June, 1921
Sir Felix J. C. Pole	June, 1921—July, 1929
Sir James Milne	July, 1929—December, 1947

Unique in many ways, the Great Western Railway got on very well for 23 years from 1840 to 1863 without having a General Manager at all—Charles Alexander Saunders being "Secretary & General Superintendent of the Line." Whether a study of this interesting period has at all influenced the sponsors of the new era to be ushered in on January 1, when General Managers are to be replaced by Chief Regional Officers, is an interesting conjecture. The first Great Western General Manager, James Grierson, had a very peaceful 24 years of office compared with the 18 years of Sir James's reign at Paddington. In passing, we believe Grierson was the only instance in British railway history of a General Manager being paid partly by salary and partly by commission on the net receipts. Of the 18 years of Sir James Milne's General Managership, not more than three of them can it be said were devoted to running a great railway under more or less normal conditions. Within six months of his appointment we were well into the trade depression which lasted until 1935. Then came the years of recovery, and the alarms of 1938, and the start of the second world war in 1939 and with it Government control of the railways, and now their nationalisation. A member since its inception, he has been Deputy Chairman of the Railway Executive Committee since 1941.

Will there be any careers like Sir James Milne's on "British Railways"? It is given in detail on page 707. He will be the first to admit that the element of chance played a good part in his career. Will embryo Chief Regional Officers be selected by psychiatrists? Young Milne had completed his pupilage in the C.M.E.'s department at Swindon when rightly or wrongly it was thought that the Superintendent of the Line could do with some brighter young men on his staff and Milne was transferred.

Next came transference to the General Manager's office and then back again to the traffic department. Aged 34 he found himself Assistant Divisional Superintendent at Plymouth. The first Ministry of Transport was then being formed. It was thought there was a preponderance of ex-North Eastern men on the establishment and that it would be desirable to have some people from other systems. Milne was interviewed and appointed Director of Statistics. Two years later he returned to the Great Western as Assistant to the General Manager. With the methods of promotion as then practised, had he not gone to the Ministry for a time he could not possibly have jumped in the short space of two years from being an Assistant Divisional Superintendent to the post of Assistant to the General Manager. After ten or fifteen years as a Divisional Superintendent he might have become first Assistant and then, say at 50 or thereabouts, Superintendent of the Line. Possibly as a result of his own experience as a district officer Sir James made it a rule that every headquarters officer on the Great Western must have served as a district officer.

It was a stroke of unexpected good fortune for Milne that, in 1929, Sir Felix Pole decided to abandon railway work in order to fill a most important post in the electrical industry. The G.W.R. board had no hesitation in making Milne their General Manager, and he took over the duties as though designed by nature for the position. The promotion to one of the most coveted posts in the railway world made not the slightest difference to Milne's outlook on life. He kept on a delightfully frank footing with his own people and with outsiders just as he had done throughout his career. He went straight to the point and disliked irrelevant talk, but he was always helpful and free from bias in forming his opinions.

We feel it would not be at all well received were we to wish the subject of this editorial a long and happy retirement. So we just ask: "Where do we go from here?" It is rumoured, first to South Africa.

* * * *

Leopoldina Railway Co. Ltd.

HIGHER rates introduced in June, 1945, are reflected in improved gross receipts on the Leopoldina Railway for the year ended December 31, 1946, which, at £3,432,034, show an increase of £448,573, in spite of a decrease in the number of passengers and tonnage of goods handled. Some results for the year are tabulated below:—

	1945	1946
	£	£
Passengers	826,267	976,610
Luggage and parcels	301,279	335,892
Goods traffic	1,755,859	2,006,133
Other receipts, less payments to Governments under guarantee, and interest thereon ...	100,056	113,399
Gross receipts	2,983,461	3,432,034
Working expenses	2,692,090	3,086,150
Net receipts	291,371	345,884

There was a reduction of 2·54 per cent. in the number of passengers carried, and the volume of goods traffic declined by 5·9 per cent. Among direct working expenses, wages and associated expenditure were higher by nearly £400,000, increases in basic rates having taken effect in May, 1945, and September, 1946. The company has received an interest-free loan from the Brazilian Government, repayable out of net revenue in excess of 6 per cent. on capital. During the year £114,000

out of the loan was spent, mainly on new rails. The report observes that in the current year the volume of traffic has been lower than in 1946, principally in the more remunerative classes. Gross receipts have remained slightly higher than in the previous year on account of the tariff increases, but working expenses have shown no decline in spite of strenuous economy efforts. The result has been the anomaly of higher gross revenue with a serious decline in net receipts.

The amount spent during 1946 for account of the improvements and renewals surcharge funds was of the order of £850,000. Apart from carrying out various improvements, a considerable quantity of new traction and rolling stock was acquired from abroad, including 300 large Garratt locomotives, three tank locomotives for use on the Friburgo Serra, and 400 wagons. The work of providing two additional tracks on the company's suburban section between Rio de Janeiro and Penha, a distance of some 12 km., was begun in August, 1946, and substantially completed by the end of the year. The report records two visits to Brazil by Lord Hawke, a Director of the company, who in company with the Secretary had discussions with the General Manager early in 1946. In October this year Lord Hawke paid a further visit to Brazil, from which he returned recently. The board records its deep regret at the death in July last year of Sir Henry Chapman, the loss of whose high ability and great experience is severely felt.

* * * *

Speed on Curves on the L.N.E.R.

IN the years before the outbreak of the recent war, there was a progressive increase in the speed of express passenger trains in many countries, including Great Britain, and also the introduction of ultra-high-speed trains. On the L.N.E.R. new high-speed passenger trains included the "Silver Jubilee" (Kings Cross to Newcastle) in 1935, the "Coronation" (Kings Cross to Edinburgh) 1937, and the "West Riding Limited" (Kings Cross to Leeds) 1937. The running of these trains raised various problems of track maintenance, not the least of which was the question of suitable standards for the alignment and superelevation of curved track, and the subsequent maintenance of such tracks to the standards adopted. Recognising that optimum superelevation can apply only to a specified speed and weight of train, it is obvious that the degree of superelevation adopted must of necessity be a compromise figure, fixed by balancing the conflicting traffic requirements of the particular section of line.

The whole of the running lines of the L.N.E.R. are classified according to their importance, and the type, speed, and weight of traffic they carry. The type of relaying is related to these considerations, and, although the type of relaying is not confined strictly to one class of line, the association of classes with types provides a good general guide. The three classes are as follow:—

Class of line	Usual type of relaying	Maximum speed
Primary ...	New chaired sleepers and new 95-lb. or 100-lb. rail	100 m.p.h.
Secondary ...	New chaired sleepers and new 85-lb. rails or the equivalent serviceable re-used 95-lb. or 100-lb. rails	70 m.p.h.
Tertiary ...	Lines relaid wholly with serviceable re-used materials, or lines not subject to complete renewal	50 m.p.h.

These maximum speeds are, of course, subject to reduction at specified points, but, with the introduction of ultra-high-speed trains, speed restrictions were introduced that were as high as 70 m.p.h., while maximum speeds over certain sections were actually above 100 m.p.h.

With regard to alignment, the former Great Northern Railway in 1922 introduced to this country the "Enregistreur Hallade," the invention of Mons. E. Hallade, of the Eastern Railway of France. This machine consists of a series of pendulums which respond to lateral, vertical, and rolling movements of a railway vehicle on the floor of which the machine is placed. The pendulums are connected by linkages to steel points which trace a continuous record on a paper band moving by clockwork through the machine. An observer actuates a further steel point which makes location marks (mileposts, etc.) on the band. From the record thus obtained the state of the track, both curved and straight, can be assessed, and any faults whether of maintenance or layout are shown clearly. At the same time the G.N.R. adopted the method of curve adjustment by versine survey introduced by the inventor of the "Enregistreur." On the formation of the existing railway groups in 1923, the L.N.E.R. adopted from the outset these aids to permanent way maintenance, and, at the time of the introduction of the high-speed trains referred to above, many curves on both the principal main lines and less important lines had been realigned and improved. The work continues, although it was of necessity slowed down during the war.

The standard for superelevation adopted at the outset envisaged prevailing speeds ranging up to say 80 m.p.h. as a maximum. The high-speed trains of the 1930s, however, were timed to run at substantially higher speeds. Moreover, as these trains were much lighter than the ordinary express train, they could, and did, run much faster uphill, climbing some gradients at 75-80 m.p.h. where the ordinary expresses did not exceed 50 m.p.h. Thus the standard for superelevation hitherto accepted had to be re-examined, as the need was to provide for running trains over existing tracks at speeds substantially higher than those theoretically appropriate to the superelevation on the curves. In other words, it became necessary to run at high speed under conditions of "cant deficiency." A provisional standard was fixed whereby cant deficiency up to a maximum of 2½ in. might be permitted in certain circumstances. This standard continued in use up to the outbreak of war, when the running of high-speed trains was discontinued, and a general maximum speed of 60 m.p.h. for all traffic was imposed.

The experience gained showed that, although good results were obtained with the provisional standard, it was desirable to extend the study of the subject to evolve standards covering, in addition to superelevation, the form and dimensions of transition curves, and the design of high-speed junctions. Such standards, moreover, would not be confined to high-speed trains on first class or primary lines but would provide for all classes of line and all kinds of traffic. On the formation of a whole-line Civil Engineering department on the L.N.E.R., a small committee was appointed to study the subject, of which the members were Messrs. E. Bilham, M. G. Maycock, and I. Stewart; the last-named was replaced after his retirement by Mr. W. L. Adamson. This committee, after prolonged consideration, formulated rules which, together with the necessary explanatory matter, including a theoretical exposition of the principles involved, and a sheet of curves giving the rules in graphical form, were embodied in booklet form. The booklet has been issued by the Chief Engineer of the company as Technical Booklet No. 11, "Speed on Curves." Extracts from the text are reproduced and show how the subject has been dealt with.

In the view of the committee, the matter appeared to fall into two main parts, namely, (1) the determination of the amount of superelevation or cant to be applied to the track, which involves also the consideration of the permissible "cant deficiency"; and (2) the determination of the permissible rates of change of cant and deficiency and their relation to the form and dimensions of the transition curve of the track. The view has been taken that the most desirable cant is an "economic" cant, *i.e.*, that value of cant which will allow of even wear of the component parts of the track, avoiding both excessive thrust and side cut on the high rail of the curve or on the other hand flattening out of the low rail. The formula for "average speed of normal traffic" given in article 11 of the Booklet is intended to secure this result. The formula takes into account the weight as well as the speed of the traffic passing over the curve,* and equilibrium cant is provided for the "average speed" given by the formula.

Provision is made for the high-speed train by allowing it to run under cant deficiency conditions, and setting a limit to the permissible deficiency. It might happen in a particular case that, in applying the "economic" cant rule, a preponderance of slow and heavy trains may so pull down the average speed for which equilibrium cant is to be provided as to call for a speed restriction to be imposed on the high-speed trains. The choice is then between adhering to the economic cant or raising the cant by the amount necessary to

* See article by F. Rapley, "The Superelevation of Railway Curves," in *The Railway Gazette* of May 21, 1943

enable the high-speed train to run at the speed desired under conditions of maximum permissible cant deficiency. If the latter course is adopted, any uneven wear of track materials which may result must be accepted as part of the price to be paid for high speed. It is not easy to lay down a hard and fast rule for the cant to be adopted in these cases, and it appears that every individual case must be decided on its merits as a matter of policy.

The rule adopted for permissible cant deficiency makes the quantity a function of the cant. In the case of primary lines, deficiency varies by a straight line law from 3¼ in. at zero cant to 1¾ in. at 6 in. (maximum) cant. Reduced deficiency with increasing cant is thought to be justified by the greater influence of track imperfections at the higher speeds associated with higher cants. The rule is empirical. The authors of the booklet know of no mathematical basis on which to found a rule for cant deficiency, and it has been necessary to depend on observation and experience. The values decided upon are thought to represent a satisfactory standard for the comfort and well-being of passengers and rolling stock, with an ample margin of safety. Allowance has also been made in the rules for errors of drivers in exceeding any speed restrictions laid down, the allowance having been deduced from a large number of observations of actual cases.

With regard to transition curves, the form of curve used is the cubic parabola, which has a constant rate of change of curvature, approximately. Since cant should be proportional to curvature, it should also change uniformly along the transition curve from zero at the entry to the transition curve from the straight, to the maximum value at the junction of the transition curve with the circular curve. By the same reasoning, if the circular curve is to be traversed under deficiency conditions, the cant deficiency should also change uniformly from zero to a maximum between the same points. The rates of change of cant and deficiency cannot be determined theoretically, and here again values are specified which experience and observation have shown to be suitable. In the booklet a limiting rate of change* of 1½ in. per second is taken for both cant and deficiency. This figure leads to the simple and convenient rule for the length of transition curves given in article 4 of the booklet, whereby the length in feet is obtained by multiplying the maximum speed in miles per hour by the cant or deficiency in inches, whichever is the greater.

It is demonstrated in the booklet (Sections 3 and 4 of Appendix 1) that the radial forces due to cant and radial acceleration act in opposite directions and that when running under deficiency conditions there is an *unbalanced* radial acceleration which is proportional to deficiency. The deficiency rate of 1½ in. per second is equivalent to a rate of change of unbalanced radial acceleration of 0·8 feet per second per second in a second.† This value is thought to be such as to ensure comfortable running. It is pointed out that it is the unbalanced acceleration which is taken into account, not the full value of the acceleration. Transition curves worked out on the full value would be longer, but there seems to be no necessity for them. That part of the radial acceleration which is balanced out by cant is not felt, and there is no need therefore to provide additional length of curve to take it up.

A portion of the booklet is devoted to the consideration of curves without transitions, which occur mostly in switch and crossing work. Formulæ are developed covering many cases of common occurrence, including permissible speeds through crossover roads, double junctions, and reverse curves. The method of approach in this case has been to consider the distance between bogie centres of a typical coaching vehicle as forming a "virtual" transition curve, since the full translation of the vehicle from straight to circular curve is effected in that distance. The standard rules concerning cant and deficiency and their rates of change are then applied.

It will be realised that all types of layout cannot be covered in a booklet such as that under notice, but it is thought that, by a proper application of the rules of the booklet, all cases of the application of cant in switch-and-crossing work, including the use of "two-level" chairs, can be dealt with. We are informed by the L.N.E.R. that experience of the application of the rules in the booklet during the past year or two has confirmed their soundness in practice.

* See Paper by Mr. J. Taylor-Thompson, "Railway Track Work for High Speeds," read to the Yorkshire Association of the Institution of Civil Engineers, Session 1937-38, March 31, 1938.

† Mr. W. H. Shortt, in his Paper "A practical method for the improvement of existing railway curves," Proc.Inst.C.E., Vol. CLXXVI, 1909, recommends a rate of change of 1 ft/S/S/S.

* * * *

Rating of Railways

SINCE April 1, 1931, railways have been rated pursuant to the Railways (Valuation for Rating) Act, 1930, which provides that the Railway Assessment Authority shall make to the Minister of Health an annual report covering its proceedings under the Act. In presenting the seventeenth annual report,* the Authority refers to the withdrawal of certain appeals against the *cumulos* as entered in the completed third roll (main-line companies), thus enabling the roll to be revised according to the procedure laid down in the Act. Some useful tables, one appertaining to the third railway valuation roll of the four main-line companies and the others to the second roll of the London Passenger Transport Board are appended to the report, and furnish interesting particulars with respect to the contents of each part of the roll, indicating the great detail which must have been abstracted before it was possible for the Authority to complete the work imposed on it by the 1930 Act and the apportionment scheme made thereunder.

A matter of some interest is the recording of an appeal to the Railway & Canal Commission Court against the exclusion from the railway valuation roll of a new staff hostel and canteen at Didcot, and the adaptation of the station buildings at Newbury Racecourse Station for similar purposes. When determining what premises are to be rated as railway hereditaments, the Railways (Valuation for Rating) Act, 1930, expressly provides that no premises occupied as a dwelling house or as an hotel shall be deemed to be, or form part of, a railway hereditament and included in the railway valuation roll.

The Railway Assessment Authority, having determined that the premises at Didcot and Newbury came within the definition of a dwelling house or hotel, the railway company appealed against this decision, and was upheld in its contention by the Court of the Railway & Canal Commission that these very extensive premises were not either a dwelling house or an hotel, and should accordingly be included with the other railway property. The Railway Assessment Authority decided to appeal to a higher court against the findings of the Railway & Canal Commission, and, since the publication of the Authority's report, an appeal has been allowed by the House of Lords, which decided that the premises at Didcot and Newbury were not occupied as an hotel, which connoted a building in which an hotel business was carried on and to which the public were entitled to resort for accommodation and refreshment. The Law Lords were, however, of the opinion that the premises were occupied by the company, through the occupants of the cubicles, as a dwelling house. Apparently the determining factor was the character of the occupation and not the class of building occupied. The effect of the judgment is that the staff hostels and canteens at both Didcot and Newbury are not railway hereditaments within the meaning of the Railways (Valuation for Rating) Act, 1930.

Reference is made in the report to the Act which was passed last year prescribing the *cumulo* net annual value of each railway undertaking for the fourth roll period which, so far as the main-line companies are concerned in England and Wales covers the quinquennium period from April 1, 1946, to March 31, 1951, this period covering the third roll so far as the London Passenger Transport Board is concerned. The effect of the Railways (Valuation for Rating) Act, 1946, was to avoid the ascertainment of the average net receipts of each railway undertaking—a difficult matter in view of the Government control of railways—by inserting in an Act of Parliament precise figures without any right of appeal.

This still left the Railway Assessment Authority the task of apportioning the net annual value among the rating authorities throughout the country, and the report of the Authority indicates that, because of abnormal circumstances, the statistical data prepared for earlier rolls were not available for the purposes of the fourth roll, with the result that the data furnished for the third roll have been largely adopted with appropriate modifications and assistance from the companies

* Seventeenth annual report of the Railway Assessment Authority, 32, Queen Anne's Gate, S.W.1. Price 9d.

and the Board with a view to the completion of the fourth roll at the earliest possible date.

The changeover from wartime conditions to peacetime operations involved careful consideration in order to arrive at a fair and just allocation of the net annual value as between railway, docks and canals and as between the rating areas concerned.

Simultaneously with the issue of the report by the Railway Assessment Authority was issued the annual report of the Anglo-Scottish Railways Assessment Authority,* which is charged with the duty of ascertaining and apportioning the average net receipts of the two Anglo-Scottish railway companies. The functions of this Authority were curtailed in relation to the ascertaining of net receipts by the 1946 Act previously referred to, the apportionment of the average net receipts between England and Scotland in respect of the L.M.S.R. and L.N.E.R., and the prescription of the *cumulo* yearly rent or value of the undertakings in Scotland being set out in the Act, instead of having to be formally ascertained.

In April 11 issue we dealt with the position in regard to the rating of railways under the Transport Bill, the provisions of which eventually found their way into the Transport Act, 1947. At that time it was suggested that had provision been made for a contribution in lieu of rates on account of what might be regarded as a Government ownership and occupation, it might have been difficult to have resisted rate payments at least equal to those subsisting at the time of the passing of the Transport Act. Reference was made to the fact that the 1946 Act had established the rate liability until March 31, 1951, so far as the main-line companies' systems in England and Wales were concerned. This still left the problem to be dealt with thereafter, and we pointed out that in any event there would always be the 1946 Act figures to fall back on in the event of insuperable difficulties in determining future net annual values.

What was then forecast seems to have happened, but earlier than we expected, because an entirely new procedure will be followed if the provisions of the Local Government Bill,† which was introduced into Parliament on October 24, in so far as they relate to railways, become law. This Bill provides for the repeal of the Railways (Valuation for Rating) Act, 1930, and the abolition of the Railway Assessment Authority and the Anglo-Scottish Railways Assessment Authority as from April 1 next.

The determination of average net receipts and the ascertainment therefrom of a net annual value to be apportioned among the rating areas in which the railway hereditaments are situated, will become a thing of the past, and a very simple method of measuring the British Transport Commission's liability for local rates and the distribution thereof among the rating authorities is proposed to be substituted. The Bill prescribes that all railway or canal hereditaments shall cease to be included in valuation lists and will not be liable to be rated, but the sum of £1,850,000 as a standard amount representing an annual payment is to be made by the Commission to a fund for the benefit of local authorities in England and Wales. In respect of Scotland it is intended that a sum shall be certified by the Secretary of State as the estimated amount which would have been payable by way of rates in Scotland in respect of railway or canal lands and heritages in the year 1947-48, if the rateable value thereof had been based on the value prescribed in the Railways (Valuation for Rating) Act, 1946.

An additional payment is to be made in the first year, that is, April 1, 1948, to March 31, 1949, for the benefit of local authorities in England and Wales, to take account of the fact that new valuations of railway hereditaments for 1946-47 and 1947-48 would have resulted in higher assessments on the whole and will not otherwise be paid. This payment does not arise in Scotland as the quinquennium does not commence until Whit-Sunday, 1948. This really represents the difference between the figures in the third and fourth rolls for two years, and a sum of £550,000 has been prescribed in the Bill on this account.

In subsequent years it is proposed that the standard amount shall be varied in relation to the changes in the average rates levied in England and Wales and similarly with regard to Scotland. Thus, any increase or decrease in the average rate poundage throughout the country will be reflected in the contribution to be made by the British Transport Commission. Provision is also made for an adjustment of payments "for changes in the circumstances of the British Transport Commissioner," such adjustment to be prescribed by order of the Ministry of Health and the Secretary of State, acting jointly.

There is no indication in the Bill as to the particular circumstances which are to be brought under review, but any Order which may be made can be revoked or varied, and the Order will not be made until the draft has been approved by a resolution of each House of Parliament. No doubt during the progress of the Bill some enlightenment will be forthcoming on this point. It is not appreciated why Docks should be exempted expressly from these provisions, and presumably will fall to be assessed for local rates by the Valuation Officers of the Board of Inland Revenue under Part III of the Act. Railway-owned dwelling houses, hotels, places of public refreshment, and premises so let out as to be capable of separate assessment, will be included in valuation lists and continue to attract rates.

A very simple procedure is contemplated in respect of railway and canal hereditaments. All that the British Transport Commission will be required to do will be to make a total payment to the Minister of Health, so far as England and Wales are concerned, and to the Secretary of State so far as Scotland is affected; these Ministers will distribute the amount among the rating authorities in England and Wales in proportion to the rateable values for their respective areas, somewhat similar provisions being made for Scotland. This is an entirely new basis, and if there should be a rating authority without a railway or canal within its area, it will still be entitled to share in the total paid in respect of railway and canal hereditaments.

Further, it would seem that it is not intended in future that there shall be any variation in the share apportioned to any rating authority in respect of railway and canal hereditaments so long as they are occupied for the purpose of the Commission. It is a moot point as to the equity of this proposal when considered from a rating principle, that is, that all occupied hereditaments shall contribute to the expenditure which is incurred by the local authority, and is represented by the rate which is levied to meet such expenditure. Local authorities are prone to resist any proposal which may tend to deprive them of any income.

On reflection, however, there may be great merit in the proposal, because it must be recognised that in future transport facilities will be provided and operated by the State, and some will urge that this must be regarded from the point of view of the community as a whole and not by reference to the specific facilities or structures provided in a particular locality. Why should it depend on the length of railway in the area and the number of trains which run over the permanent way, or the capital value of stations and other buildings, which are the factors to be considered at the present time, in order to determine the share of the total which is to be allocated to the respective rating authorities? Does not this in a large measure account for the time which has invariably elapsed before the several rolls have been completed?

It cannot honestly be urged that the railway system has not been operated for the benefit of the community under private enterprise, but the incidence of the separate interests as represented by the four main-line companies and the London Passenger Transport Board is a factor which will be entirely removed when the whole of the vast railway undertakings are merged and operated as a single unit under the jurisdiction of the British Transport Commission. Under the 1930 Act a variation in the net receipts of any of the railway companies resulted in a revision of the net annual value at the periodical revaluation. Thus financial fortunes may be a "change in the circumstances of the British Transport Commission," as contemplated by those responsible for framing the Bill requiring adjustment in the liability of the Commission as a contribution in lieu of local rates.

Broad views have to be taken and bold decisions made which may well cut across practices which have prevailed for such a prolonged period as to be regarded as almost irrevocable. No doubt many interesting points will emerge during the transition period before the provisions of the Bill so far as railways are concerned become an operative Act of legislature.

* Annual report for the year to March 31, 1947, of the Anglo-Scottish Railways Assessment Authority, 32, Queen Anne's Gate, S.W.1. Price 6d.

†H.M. Stationery Office. Price 2s.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Longmoor Garrison Church

Transportation Training Centre,
Longmoor Camp, Liss.
Hants. December 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—At Longmoor, the permanent home of the training organisation for R.E. (Tn.) and R.E. (MC), the Garrison Church of St. Martin at present contains memorials commemorating the officers and men who fell in the war of 1914-18. These memorials consist of the reredos commemorating the officers and men of the Railway Troops, R.E.; and five stained glass windows presented by the main-line railway companies and the London Passenger Transport Board. All will agree that these memorials are of considerable beauty and originality.

Further windows have now been promised by the Canadian railways and the Port of London Authority in commemoration of the fallen of the war of 1939-45. These windows are being designed by the well-known architect, Mr. Martin Travers, who was responsible for those already installed. In addition, a plaque has been erected in memory of certain men of the United States Army Transportation Corps, and a further plaque has been offered by the G.W.R. in memory of the men of their Supplementary Reserve Units.

It is felt that as Longmoor is to remain the permanent home of R.E. (Tn.) and R.E. (MC) personnel, a memorial for the 1939-45 war, apart from the individual ones referred to in the preceding paragraph, would be most appropriate in this garrison church, and that it should take the form of a stained glass window to match those installed or about to be installed, with a design to incorporate the activities and responsibilities of R.E. (Tn.) and the Movement Service.

The cost of such a window is approximately £400, and a subscription list is being opened towards raising this total. Should more than the required total be subscribed, the Church Committee propose to utilise the amount towards the cost of improvements to the church, the main item being to instal panelling on the north side of the choir to match the organ casing.

It is hoped that there will be a generous response to this appeal to improve further the garrison church, which will be used not only by present and future men of the R.E. (Tn.) and R.E. (MC), but also by Supplementary Reserve Units during their annual training at Longmoor. Subscriptions are therefore invited, and may be sent to, and will be acknowledged by, The Commandant, Transportation Training Centre, Royal Engineers, Longmoor Camp, Liss, Hants.

Yours faithfully,
R. GARDINER, Brigadier,
Chairman, Longmoor Garrison Church Committee

Wagon Turn-Round

Mereflett, Beaumont Rise.
Marlow. December 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In an editorial note in your issue of December 5 you say: "Turn-round time would increase as the traffic decreased and *vice versa*, which, as Euclid said, is absurd." It is not absurd; in fact I would suggest that it is obvious, assuming that you have a limited number of wagons. To take an instance, suppose one region has a holding of 200,000 wagons and is loading, or receiving loaded, a total of 20,000 wagons daily: then the turn-round is 10 days. Now suppose that the demand increases to 24,000 wagons a day; the region has two courses open to it: either to increase its holding by borrowing an additional 40,000 wagons, or accelerate movement and reduce terminal and yard delays so as to bring its turn-round down to 8·3 days.

Again it is not necessary, as you suggest, to make any analysis of individual wagon movements in order to obtain the turn-round time accurately. That, I suggest, is the value of recording turn-round time; it is the one movement statistic that can be kept always absolutely up to date, provided only that (*a*) daily total wagon balance, (*b*) daily loading, and (*c*) daily inward loaded received are known and recorded daily.

But this analysis of individual wagon movements must be made, not only "at intervals," but continuously, if the more scientific statistics are to be maintained. I refer to such figures as wagon-miles per wagon-day, net ton-miles per wagon-day, net ton-miles per goods train-mile, net ton-miles per engine hour, percentage of empty and loaded mileage to total mileage, and so on. Unfortunately, I do not know what operating statistics the British railways maintain. But I should have imagined that the railways and the Clearing House between them would have recorded sufficient data to enable statistical figures of the kind I have suggested to be extracted. It is done continuously in India, so I shou.d have expected it would also be done here, where practice usually is supposed to be more up to date and scientific than in India.

At present one gathers that the railways, in their drive to reduce turn-round time, are concentrating on cutting down unloading time. One infers that this is the most serious source of delay and that time in yards and time on the run, both loaded and empty, is already such that no important reduction can be attempted.

Yours faithfully,
G. E. CUFFE

Proposed Rebuilding of Euston Station

148, Shaggy Calf Lane,
Slough, Bucks. December 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The rebuilding of Euston is again postponed. I suggest that the reverse of a plan originally put forward over 100 years ago, whereby the G.W.R. trains were to use the terminus at Euston by means of a junction with the London & Birmingham Railway at Kensal Green, would not prove impracticable. By rebuilding and enlarging Paddington to handle the traffic of both systems, the awkwardly situated terminus at Euston could be dispensed with, and the gradient necessary to cross the canal thus would be removed to a position about two miles from the starting point, where it possibly could be made less severe than the 1 in 70 of the Camden incline.

A proportion of the suburban traffic of the L.M.S.R. line is catered already for by the running of through trains over the Bakerloo line, and an extension of this principle to cover a similar distance on the Great Western main line would leave the terminus exclusively to the outer suburban and long-distance services.

Yours faithfully,
J. B. KEW

Left- and Right-Hand Running

Great Western Railway,
Signal & Telegraph Engineer's Office,
80, Caversham Road, Reading, December 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The article in your issue of November 28, page 607, is most interesting, particularly in the attempt to explain the origin of our practice.

I think it might have added to the interest if the writer had mentioned that there is still an instance of right-hand running in this country, namely the Central London electric railway, once popularly known as the "twopenny tube." When this was extended from Wood Lane to Ealing, a rectification to left-hand running was made by means of a flyover in the vicinity of Wood Lane, so as to conform to standard G.W.R. practice, and to facilitate junctions and connections with the same.

Yours faithfully,
G. H. CROOK

[Our correspondent is incorrect in stating that the Central London Railway is, or ever was, a right-hand running line. The terms left and right-hand running are not entirely applicable to a tube railway in which each line is in a self-contained tunnel, and, moreover, the two tunnels sometimes change sides in plan because of construction difficulties. Nevertheless, the original Central London Railway was built as a left-hand running line (in plan) between the Bank and Shepherds Bush, and this may be noticed at such stations as permit of seeing both tracks from a common point. What Mr. Crook has in mind is that, when the Central London Railway was extended to Wood Lane on May 14, 1908, for the White City Exhibition, the new station was built on a terminal loop and the topography caused the up and down tracks to be reversed here for a short distance. The Ealing & Shepherds Bush Railway of the G.W.R. (over which Central Line trains run) is virtually an extension of the Central London Railway, and takes off from the Wood Lane terminal loop. Obviously it was desirable, with the line now above ground, to revert to the standard left-hand running position, and this was achieved by the flyover west of Wood Lane, which was also arranged to act as a flying junction at the point where the goods link at that time left the Ealing & Shepherds Bush Railway to join the West London Railway. The latter feature disappeared in the quadrupling brought into use on June 19, 1938, in preparation for the extension of Central Line trains to Greenford.—ED., *R.G.*]

The Scrap Heap

Cosy Corner

Recording some impressions of the new refreshment room at Waverley Station, Edinburgh, L.N.E.R. (the opening of which was recorded in our December 12 issue), *The Scotsman* writes:—

"One gazes through chalet style, green curtained windows to the gaunt railroad wastes without. It gives the last touch of refinement to one's snack to look up and see pressed against the windows the noses of hungered, envious travellers, stumbling through the night to forlorn destinations. Reduced to a pleasant murmur, the accents of the train announcers sound softly in this snug haven, like ancestral voices prophesying war in the ears of a happy neutral."

* * *

Another Crisis Coming?

A message from the London correspondent of the *Wall Street Journal* predicting growing difficulties for British railways, is quoted by Reuters. The article was headed: "New British Crisis Transport Woes Take Top Rank; Antique Rail System Bogging Down,' and the correspondent declared that one-sixth of the goods wagons were out of service; the average locomotive had passed its thirty-second birthday and was not thriving "on its diet of low-grade coal."

Further, he said: "Far from rebuilding and modernising Britain's vital rail arteries since the end of the war, the Government—in complete control—has allotted materials and manpower, so a partial disintegration was inevitable."

G.W.R. Keeps the Ashes

The G.W.R. has found it necessary to discontinue the sale of locomotive ashes to private firms, as the whole supplies are required in connection with various new works now in hand.

* * *

100 YEARS AGO

From The Railway Times, *Dec.* 18, 1847

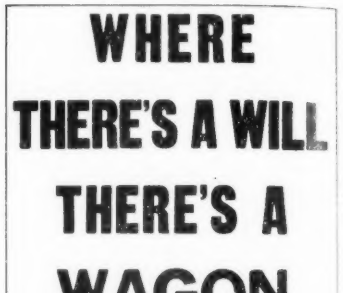
GREAT NORTHERN RAILWAY

To the Editor of the Railway Times.

Mr. Editor,—Seeing in your paper on the 23 inst a letter signed above from a coresponden who signes himself a victim your corespondent states that having seen the act of parliment of the great northern railway he finds the fares so low that it will not be remunerative to the share holders and advise the share holders to call a meeting to abandon that portion of the line between London and peterburgh Surely this self stiled victim cannot be sinseer or conversent with railway affairs unless he as shares in a rival Line and wishes to divert the trafic to a rival line when it is a well known fact that between London and Peterburgh we save nearly 30 miles i ought to observe that i have seen the act of Parliment i cannot agree with your corespondent these self stiled victom do a great injury to all railway property i serpose share holders are like flocks of sheep we invariably find some scabby ones omoung them i have never had the honour of speaking to our worthy chirman or directors but have been to the meetings i watch their conduct carefuly for sum time past and solemnly believe that a moore honourable upright honest body of Gentlemen cannot exist i hope the day is not far distant when we may have a oportunity of expressing our gratitude in a diferent way than we have at present.

I Remain yours
A small but contented share holder
J H W.

[We give, as in duty bound, the above evidence in favour of the Great Northern line, *verbatim et literatim*. "Jeames" himself could hardly have exhibited more earnestness in his sentiments, or a more independent diregard of the trammels of orthography.—Ed. *R. T.*]



One of the posters issued by the British railways in connection with the wagon turn-round campaign. Other literature includes envelope stickers

* * *

Privileged Class

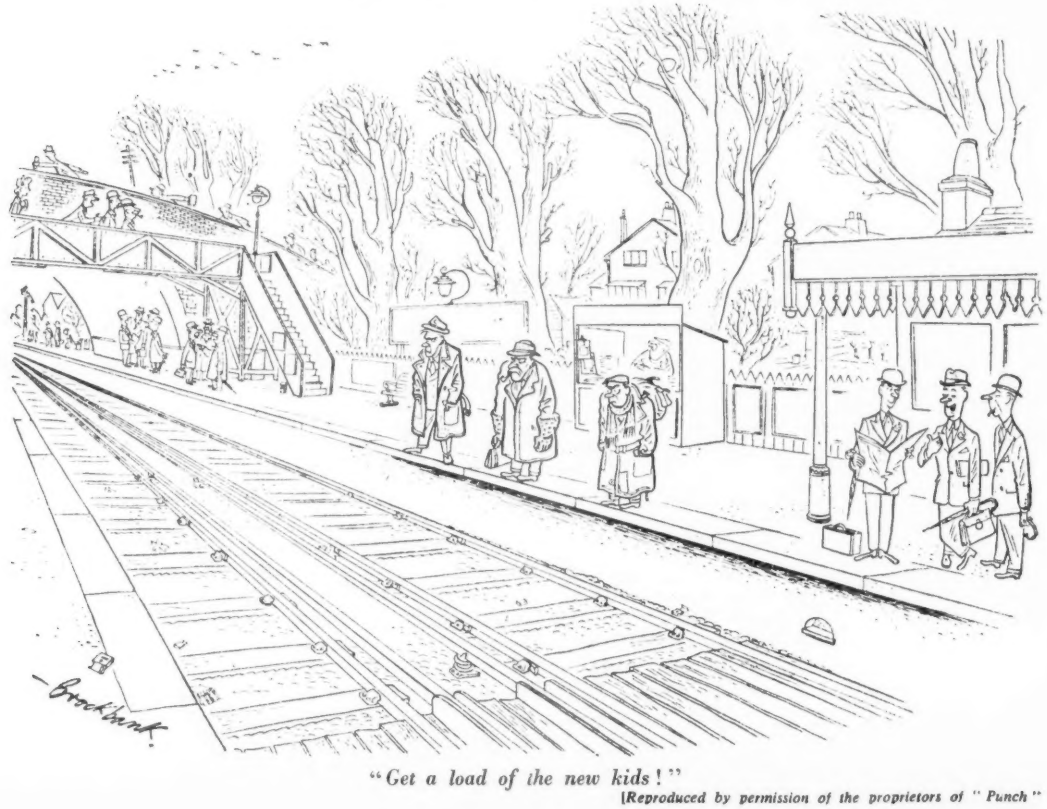
The platform was crowded when the train steamed in. Third class carriages were soon filled. A number of Geordies got into a first.

Porter: "Do you chaps know this is a first class compartment?"

Geordies: "Whey, aye, we knaa, but us is miners."

Porter salutes and shuts carriage door.—*From the "Newcastle Journal."*

The First Day of No Basic



"Get a load of the new kids!"

[Reproduced by permission of the proprietors of "Punch"

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

WESTERN AUSTRALIA

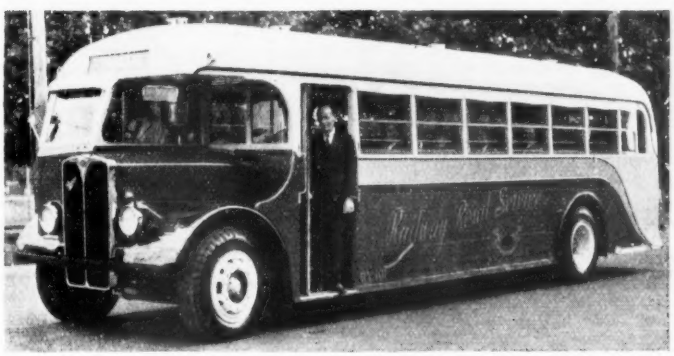
Co-ordinated Trains and Buses

The issue to traffic on October 31 of the first of 17 A.E.C. diesel-engine buses being built to the order of the Western Australian Government Railways, marks the first step in the inauguration of a co-ordinated rail-road service in the south-western portion of that State.

The Railway Department already operates a passenger road service between Perth and Cranbrook, serving an area previously catered for by cross-country train services which, by reason of their roundabout routes, involved long and tedious travel by mixed train for a portion of the journey.

Towards the end of the war it was decided that in conjunction with a new fast non-stop train to be introduced between Perth and Bunbury, bus services

Motorcoach for Western Australian Railways



New A.E.C. vehicle for services in country districts

would radiate from Bunbury to serve districts at present catered for mainly by mixed train services. Orders were placed in England for 17 bus chassis, to be fitted locally with bodies. The first vehicle has now been issued.

The first bus is being used to provide a service between Bunbury and the Caves House at Yallingup, in conjunction with the Government Tourist Bureau; and also between Bunbury and Collie. As additional vehicles become available, additional services will be provided.

The new bus is painted in the department's standard colours of cream and green, with "Railway Road Service" and the department's black swan and ribbon insignia on each side. Body length is 30 ft., width 8 ft., and headroom at centre 6 ft. 8 in. Comfortable seating is provided for 32 passengers, together with ample luggage space. Up-to-date extractor ventilation is arranged in the roof, the floor is covered with heavy brown linoleum, and the bus is electrically lit. The chassis has a 20-ft. wheelbase, double back wheels, and fluid drive, pre-selective gears, and a powerful air-brake system. The vehicles are particularly sturdy, and specially selected for service in the heavy hill country east and south of Bunbury.

During the year the department also extended its activities in the road transport of goods. A perishable goods service by road was inaugurated between Perth and Kojonup on May 19, and in addition, by arrangement with West Australian Newspapers Limited, the transport of newspapers by road to certain districts has been instituted.

INDIA & PAKISTAN

Delhi Express Derailed

Two firemen were killed, the driver and the luggage guard seriously injured, and eight passengers slightly injured, when the engine and luggage van of the "Delhi Express" were derailed and damaged at Itola, near Baroda on the B.B. & C.I.R. in the early hours of October 25. According to a passenger's report, there was a severe jolt just after leaving Itola Station platform, followed by the engine jumping off the rails and falling 10 yd. away on the platform side, and the tender breaking away towards the other side. Two luggage vans immediately behind the engine also were derailed, and capsized on the up track. Three third class bogies also left the rails.

New Beyne River Bridge

As recent floods on the Eastern Punjab Railway have caused permanent damage to some parts of the line (see *The Railway Gazette* of October 31 and November 14) the railway is constructing a new bridge for the down line over the East Beyne River between Chiheru and Jullundur Cantonment. The bridge is to consist of four spans of 100 ft. and two of 138 ft. and is to be founded in wells about 60 ft. deep. All work in connection with the bridge, including the guide bunds and the earthwork on breaches, will be done by contractors; the fabrication and erection of the main steel girders is to be undertaken departmentally.

Railway Board Directorates Closed

The Ministry of Railways (India) has abolished three directorates of the Railway Board, namely, Projects, Traffic (General), and Stores, in order to reduce expenditure and to bring about decentralisation of the railway administration. Post-war projects formerly handled by the Projects Directorates now will be dealt with by the individual directorates concerned. Abolition of the Traffic (General) Directorate, which fixes the rates and fares policy of the board, will result, it is believed, in reduced time and cost.

The board has a Controller of Stores (an officer attached to the Ministry of Industries & Supplies) for obtaining railway requirements. With the creation of this liaison officer, the necessity for the Stores Directorate no longer exists.

By abolishing eleven high posts and eliminating superfluous work and personnel, the board will not only effect quicker disposal of cases, but also will make senior and experienced officers available for railways administrations which have been functioning with depleted staffs.

New Railway Union Formed

At a general meeting of Eastern Punjab Railway employees in Delhi on October 28, an Eastern Punjab Railwaymen's Union was formed. The union decided to send a deputation to interview the Chief Administrative Officer of the railway.

BURMA

Timetable Improvements

As from November 15, Nos. 1 and 2 Rangoon-Mandalay mail trains have been accelerated by the elimination of halts at wayside stations, and improved connections have been given with branch lines. New stopping mixed trains have been introduced to serve intermediate stations, one in each direction between Rangoon and Toungoo, and one each way between Toungoo and Mandalay. The November 15 timetable represents an increase of about 25 per cent. in train-miles. The Sagaing to Kawlin section of the line to Myitkyina was reopened on that date.

SOUTH AFRICA

Level Crossing Warnings

A programme for making level crossings safer has been drawn up by the railways, and will be put into immediate operation. In addition to the £5,000 allocated to this purpose under the National Road Safety Campaign, the Minister of Transport now has authorised an additional £30,000 to be spent on improving the safety devices at the 3,000 level crossings in the Union. At present, level crossings are protected with warning bells, flagmen, or electric signs, in addition to the usual "Halt" signboard. Arrangements are now in hand for providing four new types of sign.

Distant warning boards will be erected 100 yd. from the crossing. These will take the form of a black cross with white reflecting lenses, on a lemon yellow background. Close to the level crossing will be a "Stop" sign in black letters, with red reflecting lenses.

A special flashlight sign will be erected at all crossings protected by booms, flagmen, flashlights, and bells. On single-line sections, a red triangle will be fixed above the flashlights, with red reflecting lenses.

At level crossings other than those in industrial or shunting areas, the crossing sign will consist of a red triangle, in which will be painted a black engine. This sign will be picked out in white reflecting lenses. A similar sign with a warning board reading "Beware of Shunting" will be erected in shunting and industrial areas.

RHODESIA

New Records in Results

The Rhodesia Railways are establishing new records almost every month. During August the total earnings amounted to £701,812, the highest ever recorded for any one month in the history of the system. In the same month, the administration's

road motor service lorries eclipsed their previous record by running 95,523 miles.

The total earnings of the Rhodesia Railways for their first five months under public ownership amounted to £3,362,118, representing an increase of £282,965 over the corresponding period of 1946. At the same time, however, there has been an increase of £476,897 in the gross operating expenditure, resulting in a decrease of £193,932 in the net operating revenue.

ARGENTINA

New B.A. Provincial Branch

The Buenos Aires Provincial Railway has begun construction of a short branch from Olavarria to Loma Negra, where there are limestone quarries and cement factories. The new line will be 16·9 km. (10½ miles) in length, and will cost ps. 2,595,990 Argentine paper.

POLAND

Through Trains from Czechoslovakia

The Polish Government has given permission for the transit of Czechoslovak goods trains, with Czechoslovak goods, to Polish harbours for export, and *vice versa* for imports. These trains carried 100,000 tons of Czech exports in September, and 110,000 tons in October; in November and December an aggregate of 300,000 tons is expected. In return for this concession Czechoslovakia lent the Polish State Railways 800 goods wagons for use in October and November.

Bridging Progress

The wholesale destruction of railway bridges by the retreating German armies was one of the factors most difficult to overcome in restoring the services of the Polish State Railways after the liberation. In the years 1944-45, concentration was on construction of temporary bridging to bring main-line services back to operation. Construction of permanent bridging began last year.

From January 1 this year until August 30, 8,400 yd. of new bridging, mostly in steel, or reinforced concrete, had been completed. The construction of the reinforced concrete viaduct at Golabski, on the Warsaw-Kutno line, is nearing completion, all concrete work being finished. With the abolition of the present detour, the Wlochy-Golabski line will be reopened to traffic; in the meantime embankments have to be rebuilt, and a new signal box brought into operation.

GERMANY

Dismantled Lines in Russian Zone

Particulars of the large-scale dismantling of entire railway lines, or of second tracks on main lines in the Russian zone of Germany, point to a total of 4,347 miles (7,000 km.) of track dismantled and transferred to Russia. In the Berlin district of the Reichsbahn alone 15 lines are reported to have been dismantled completely, and the number of lines demolished in the Greifswald district of Pomerania is stated to be thirty.

Conversions to Single Track

As to double-track lines in the Russian-occupied zone, all but three main lines have had their second track removed, and the dismantling of the second track on two of these is now in progress in accordance with a supplementary dismantling programme affecting 745 route-miles. The two lines concerned are Leipzig-Magdeburg (74½ miles) and the 23-mile Dessau-Wittenberg line connecting at Wittenberg with the Berlin-Leipzig line.

FRANCE

Heavy S.N.C.F. Costs Increase

S.N.C.F. estimates show an increase of fr. 24,000 million (£50,000,000) in annual expenditure due to the rise in coal and steel prices, the higher wage bill, and increased taxes. Unofficial estimates place the increased annual revenue due to an average rise of 25 per cent. in rates at fr. 36,000 million (£75,000,000). Critics doubt whether the increased revenue will enable the S.N.C.F. to balance its budget. Much will depend on the effect on operating costs of the proposed reorganisation of the S.N.C.F.

BELGIUM

Swiss Loan for National Railways

A Government Decree published in the Belgian Official Gazette of November 23 empowers the Belgian National Railways to float a loan in Switzerland for 50 million Swiss francs (approximately £2,880,000), bearing interest at 4 per cent. The loan will be repayable at par on December 1, 1959, but the Belgian National Railways will be entitled to redeem it wholly or partly at any time before that date. The loan is intended for financing the reconstruction of the Belgian railways and for carrying out certain renewal schemes.

TURKEY

Delivery of American Locomotives

The Vulcan Iron Works, of Wilkes-Barre, Pennsylvania, recently delivered to the Turkish Government 88 locomotives, believed to be the first ever purchased by Turkey from the United States. These engines are intended to initiate the current extensive modernisation programme of the Turkish State Railways.

U.S.S.R.

Inauguration of Railway Academy

The Academy of Railway Transport, a traffic school belonging to the Ministry of Communications of the Soviet Union, was opened at Moscow on November 15. The opening ceremony was presided over by the Chief of the Academy, Major-General M. V. Obyden, and an inaugural speech was made by I. V. Kovalyev, Minister of Communications. The academy is for training higher grade officials.

Publications Received

The Narrow Gauge Railways of Wales. By R. W. Kidner. The Oakwood Press, "Tanglewood," South Godstone, Surrey. 7¼ in. × 5¼ in. 16 pp. + 8 pages plates. Third edition. Price 2s.—This is a reprint, in an improved style of production, of No. 2 of the "Light Railway Handbooks." It was first published in December, 1936, and a second edition with revisions was issued in the next year. This, the third edition, incorporates further information that has come to light in the intervening ten years.

Railways at War: A Record of the Activities of the New South Wales Government Railways in the Second World War. Sydney, Australia: Public Relations Section, Department of Railways, 19, York Street. 8¾ in. × 6¾ in. 71 pp. No price stated.—Not only did the New South Wales Government Railways perform an exceptional task in hauling civilian and military traffic during the war years, but their engineering facilities contributed greatly to the manufacture of supplies. Many components were manufactured for "Beaufighter" aircraft, and the administration's Chullora workshops were engaged on the production of sub-assemblies and details for "Lincoln" aircraft even before the first of this type were in production in Great Britain.

Many of the works undertaken to facilitate the movement of traffic in wartime are proving already of advantage to normal daily working. Post-war plans were drawn up as opportunity offered during the war years, and at the present time a programme of development estimated to cost many millions of pounds is waiting to be implemented. These projects are described in the book, which is fully illustrated with scenes taken on the railways in wartime, and views of the latest types of equipment.

Scientific & Technical Research in British Industry.—This statistical survey by the Industrial Research Secretariat of the Federation of British Industries, 21, Tothill Street, London, S.W.1, represents for the first time a major attempt to assess in this way the scientific and technical research effort by British industry in its own laboratories and works. It is based on returns from 420 firms, each spending not less than £1,000 a year on research, and covering about 75 per cent. of the total research effort of the country. This survey shows, among other things, that British industry now is spending some £30,000,000 a year on industrial scientific research, and that this work is carried out by a staff of 45,000, of whom 10,000 are qualified scientists and engineers. More than half of these firms are in direct contact with universities and technical colleges and 60 have endowed scholarships or fellowships.

Three firms out of every five plan to expand their scientific facilities, for which they require new laboratory buildings of over 3,000,000 sq. ft. of floor space, and additional qualified staff totalling 2,500, the chief demand being for chemists, engineers, and physicists. Delay in the delivery of scientific instruments and equipment is impeding research progress.

The importance of each firm of any size possessing a scientific staff in proportion to its technical needs is stressed, and it is emphasised that the immediate application to industry of knowledge already available is of first importance. Copies of this survey may be obtained from the F.B.I. for 1s. each.

Steel Bar Specifications.—The Kirkstall Forge Limited, Leeds, 5, has issued the fourth edition of a 130-page catalogue dealing with the production and use of Kirkstall steel bars. Full details are given of British and American engineering and aircraft steel specifications, together with many tables, reference data, and technical information. In view of current publication and printing costs, a nominal charge of 7s. 6d. is made for this new edition of the company's catalogue.

Central Line Extensions into Essex

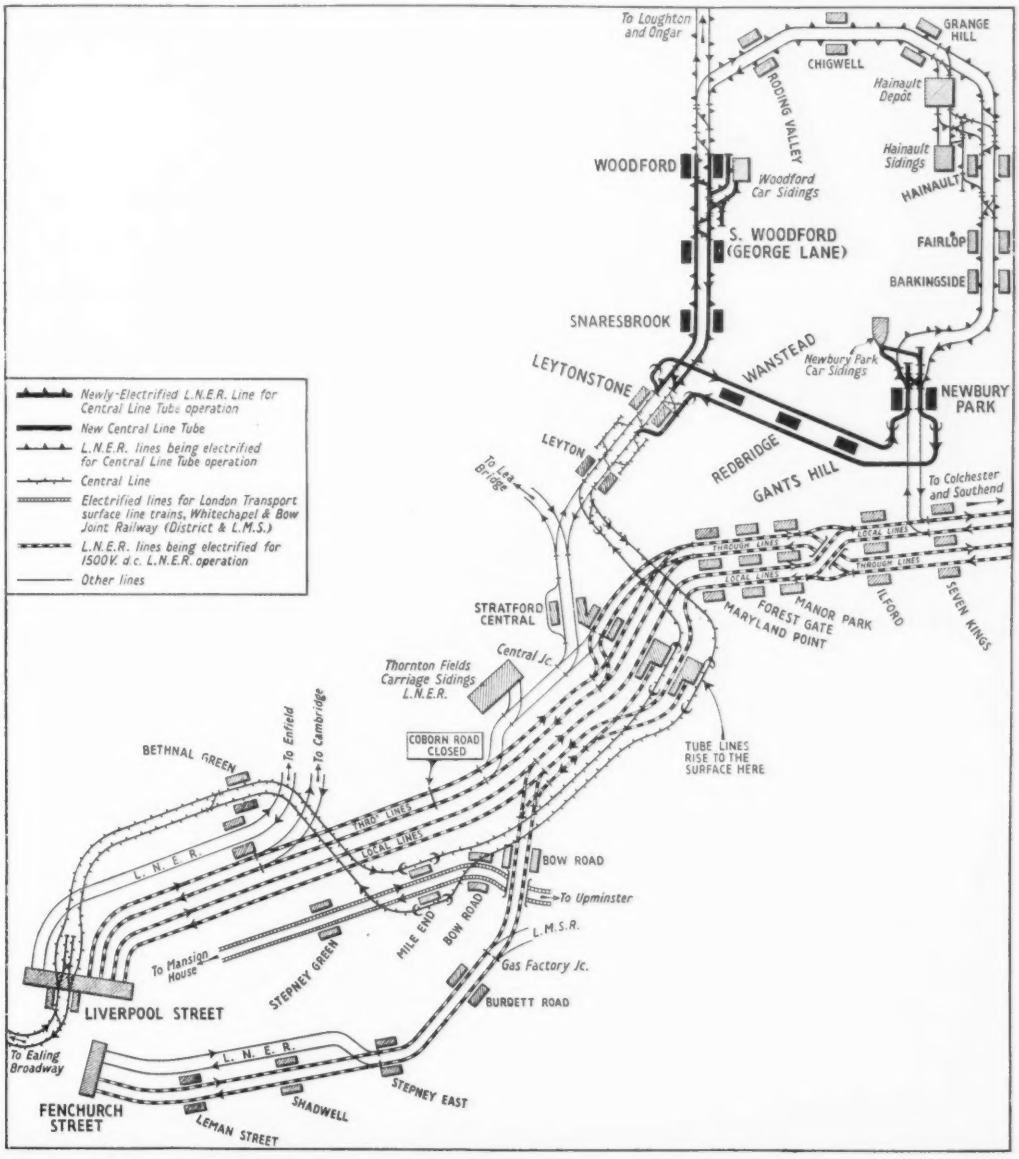
New tube to Newbury Park—First use of reinforced-concrete segments—Electrified L.N.E.R. line to Woodford

THE formal opening on Friday last (December 12) by the Minister of Transport of the new Central Line extension to Woodford and Newbury Park was an event of more than usual interest for a number of reasons. First, it represented the last new construction to be brought into public use under private ownership. Secondly, it represented the completion of the tube railway tunnel construction programme for the London area, with the exception of the short link between Drayton Park and Finsbury Park. Thirdly, and particularly from the civil engineering viewpoint, it was of unusual interest as the first tube railway to be lined with reinforced-concrete segments.

It may be recalled that this North-East London scheme, designed in 1935 to provide adequate travelling facilities for the rapidly-growing population in the area east of the Lea Valley and north of the main road to Brentwood and Chelmsford, was made possible by close co-operation between the L.N.E.R. and London Transport. London Transport is projecting its Central Line services from Liverpool Street in stages eastwards largely by taking over for operating purposes, and converting to electric traction, the L.N.E.R. line to Ongar and the Fairlop Loop. A new tube railway was built from Liverpool Street to Stratford and brought into operation on December 4, 1946. This was extended in tube to Leyton and thence over L.N.E.R. electrified surface tracks to Leytonstone on May 5 last. The present openings comprise the further extension over electrified L.N.E.R. surface lines of Central Line trains to Woodford and also the bringing into use of a new tube from Leytonstone to Newbury Park, where it comes to the surface to form a junction with the L.N.E.R. Fairlop Loop line. The L.N.E.R. sections have been resignalled, and electrification is on the standard London Transport 600-volt d.c. fourth-rail system. Power supply for the extension has necessitated the provision of six additional substations.

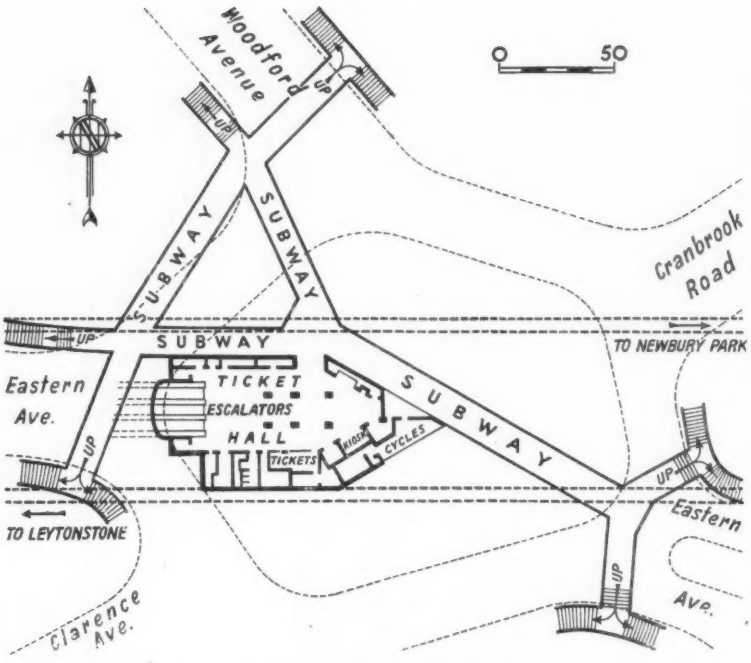
The New Tube Line

The new section of tube line to Newbury Park begins just beyond Leytonstone by a descent in reinforced-concrete cutting at 1 in 45 on each side of the existing L.N.E.R. line. This tube section, which is four miles long, has three intermediate stations at Wanstead, Redbridge, and Gants Hill. The platforms at these three



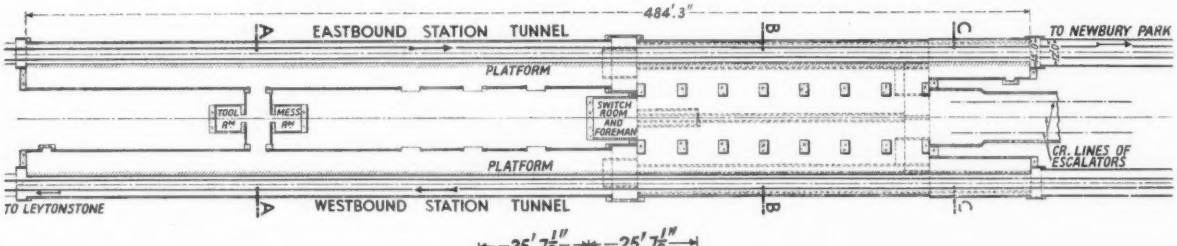
Sketch map (not to scale) showing the new Leytonstone to Newbury Park tube, and the newly electrified Leytonstone to Woodford line, in relation to existing lines

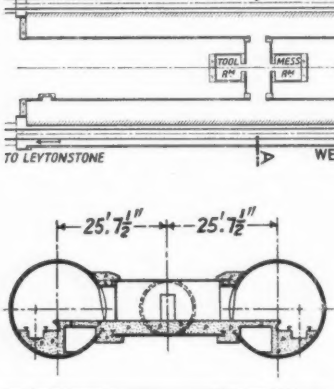
THE STATIONS ON THE NEW TUBE RAILWAY BETWEEN LEYTONSTONE AND NEWBURY PARK



Left: Plan at subway level of Gants Hill Station showing the six street entrances and sub-surface ticket hall

Below: Plan and cross-sections of Gants Hill Station at platform level





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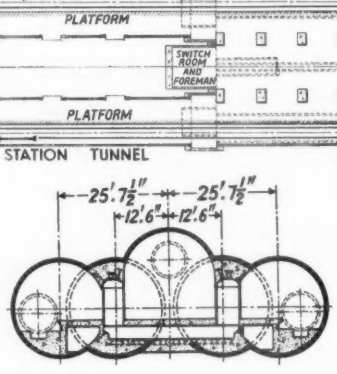

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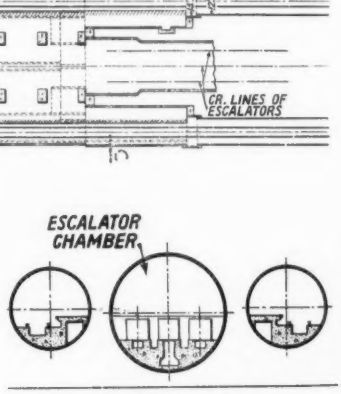

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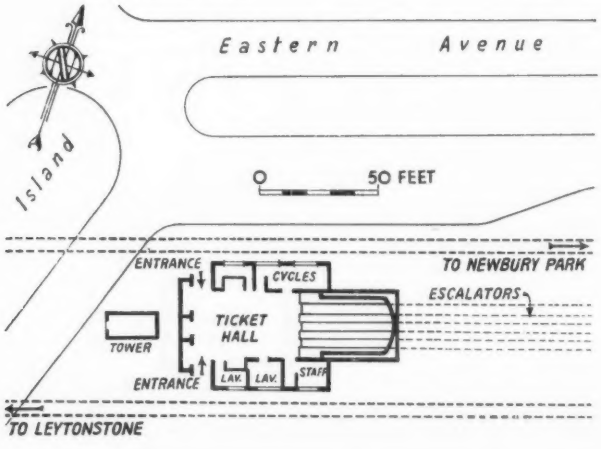
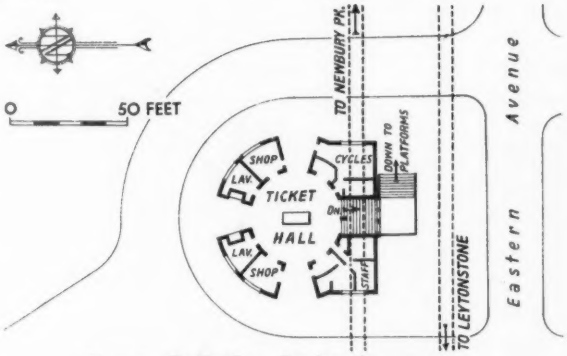




Above: Redbridge Station (permanent station building still under construction)

Left: Wanstead Station

Sloped reinforced-concrete cutting approaches to the tubes under construction at Leytonstone Station

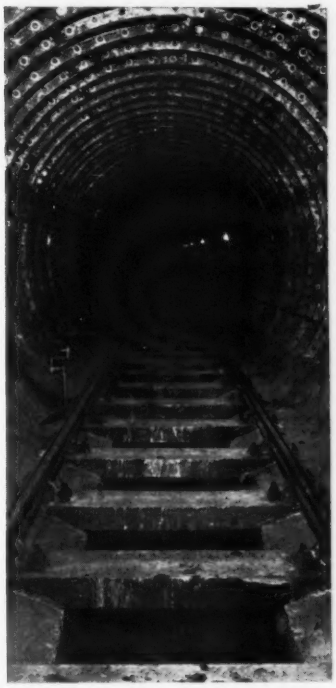
stations are all at tube height, namely, 1 ft. 8½ in., but on the L.N.E.R. surface lines the platforms have been brought to the compromise height of 2 ft. 9 in. above rail level.

This tube line was nearly completed at the outbreak of war, but the track was not laid. In the autumn of 1940 Lord Beaverbrook approached the London Passenger Transport Board with a view to exploring the possibility of underground accommodation for the protection of vital production machinery, and this uncompleted tube was selected and pronounced capable of conversion. The work of equipment was begun in November, 1940, and a factory of about 300,000 sq. ft. of floor space was opened in March, 1942. The Ministry of Aircraft Production selected the Plessey Co. Ltd. (which had an overground factory at Ilford) to use the underground site as an aircraft component factory, and as such it served throughout the remainder of the war.

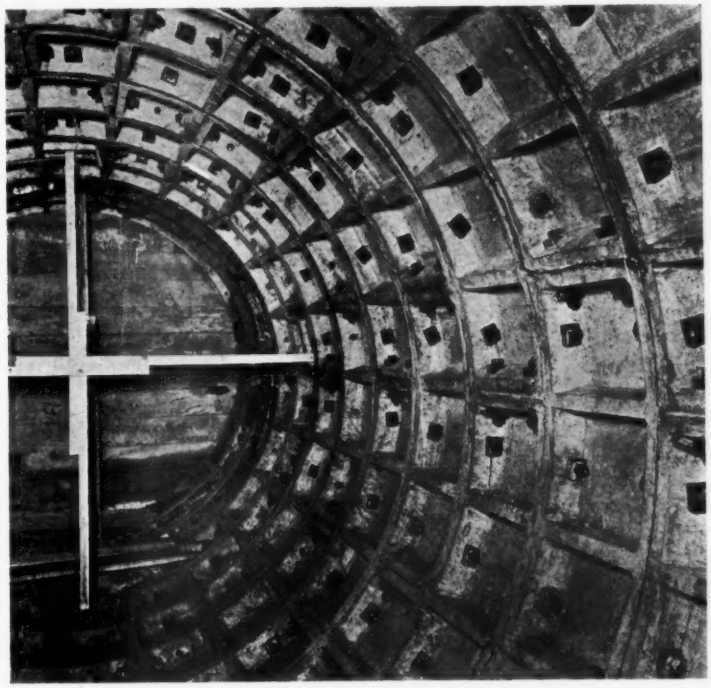
At Wanstead the ticket hall is at the corner of Eastern Avenue and High Street, above ground, and two escalators with a rise of 60 ft. provide the means of communication to a standard deep-level tube station; there is a fixed stairway between them. The booking hall is some 40 ft. square, and the station building has been adapted from the Plessey factory entrance building, for the sake of economy and speed. This building has large concrete-framed windows. The interior tiling, etc., of the station is in cream and green.

The new ticket hall at Redbridge is built above the surface on an island at the junction of Redbridge Lane and Eastern Avenue, and a footbridge over the latter will provide access from the south side. The lines come so close to the surface here that a short stairway connects the ticket hall and the island platform which, with the tracks, is in a reinforced-concrete cut-and-cover tunnel. The permanent surface building at Redbridge has been held up by steel shortage, and a temporary booking hall has been built, therefore, with a covered way approach to the stairs. The interior tiling of this station is in cream and blue.

The station at Gants Hill is of the Piccadilly Circus type, below the centre of a road traffic roundabout, with subway entrances from the adjacent street corners. The low-level part of the station is on a more elaborate scale than usual, there being a large concourse between the platforms at the foot of the escalators with a high arched roof supported on 16 columns. This hall is nearly 50 yd. long. There are three escalators, with a 32-ft. rise. The interior tiling of the station is in cream and yellow.



Standard cast-iron tube with permanent way laid, but before installation of conductor rails



Tube constructed in pre-cast reinforced-concrete segments

All three stations are situated on Eastern Avenue, a relatively new arterial road leading eastwards out of London.

At Newbury Park, a temporary booking office has been built alongside the old station, and a new station incorporating a staff canteen is to be built later. A new bus forecourt is also being constructed, including a reinforced-concrete roof under which buses will discharge their passengers, who will enter the station under cover.

Reinforced-Concrete Tube Segments

An unique feature of this section of tube is that reinforced-concrete lining has been used for 2¼ miles of running tunnel. Because of the increased thickness of the flanges of the concrete lining, signal apparatus cannot be nested into the segments as it can in those of cast iron, and the concrete lining is accordingly made 12 ft. 3 in. internal dia. Each ring has the same

Engineering Library

overall dimensions as the normal cast-iron ring, and the reinforced-concrete rings are lighter than cast iron, as well as cheaper. The external face of the concrete is coated with a bituminous solution to prevent attack by any impurities in the soil. One of the initial difficulties encountered in developing this type of lining was to provide sufficient strength in the circumferential flanges to resist the very considerable thrust from the rams of the shields, and much of the reinforcing has been devoted to this purpose. In the casting of the segments vibratory methods were used. In all, nearly 9,000 of these rings were used. The remaining portion of the tube consists of standard cast-iron rings, of which some 13,000 were used.

Central Line Services

As a result of the replacement of Wood Lane (short-platform) Station by the new White City (long-platform) Station on November 23, and the opening of the Newbury Park and Woodford extensions, all Central Line trains have been increased from 6 cars to 7 cars. There are some peak-hour 8-car trains, making a number of journeys during peak times. The service provides for more than 180 trains a day each way on each of the two new sections. The rush-hour frequency on each section is 16 trains an hour each way (i.e., a train every 3¾-4 min.). West of Leytonstone the two services combine to 360 trains a day each way. There is no reversing at Leytonstone, all trains reaching there from the City proceeding either to Woodford or to Newbury Park. The inter-station time between Leytonstone and Newbury Park is 10 min., and between Leytonstone and Woodford 7 min.

Level Crossings Closed

As a result of this increase in the train services from six or eight to 16 to 32 trains an hour on the Woodford line, it became necessary to close level crossings at Eagle Lane, George Lane, and Snakes Lane, in the borough of Wanstead and Woodford, and this was done as from November 30. There are pedestrian subways at each of these points. The footway across the railway at Marlborough Road also has been closed, and, until the erection of a footbridge at this point is completed, pedestrians have to use the subway at George Lane.

Vehicular traffic and the bus service formerly using Eagle Lane level crossing have been diverted along Hollybush Hill and New Wanstead Road, or along Woodford Road and High Road to Southend Road. It is hoped, however, that the permanent route under the railway bridge at High Street, Wanstead, now closed to vehicular traffic, but open for pedestrians, will be completely available in March next year when the raising of the low bridge is completed. Traffic at George Lane crossing has been diverted along Southend Road, *via* Gates Corner or Chigwell Road, and traffic formerly using Snakes Lane has been diverted along St. Barnabas Road, Broadmead Road bridge, and Charteris Road. Work on a permanent bridge at George Lane has been begun.

L.N.E.R. Steam Services

As already announced, the Fairlop Loop was closed to rail traffic on November 30. A revised steam service of L.N.E.R. trains was introduced on Sunday, December 14, between Woodford, Loughton, Epping, and Ongar. Woodford thus becomes the interchange station between L.N.E.R. and London Transport trains, pending the completion of further electrification.

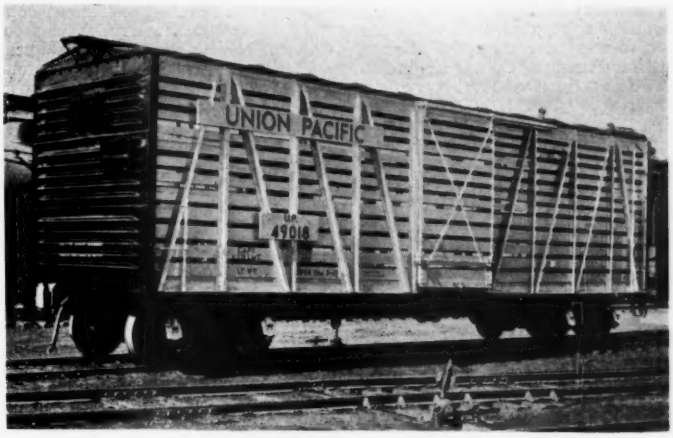
Platform view at Wanstead Station with a staff train passing through. The fluorescent lighting will be noticed

Illuminated diagram and power frame in the new 59-lever Newbury Park signal box. Except for Woodford Station and Woodford Junction, all boxes between Leytonstone and Newbury Park, via Grange Hill, are now staffed by London Transport

Sound-absorbing panels in tube tunnel, which, in conjunction with 300-ft. rails, reduce noise in the carriages

Increasing Use of Roller Bearings in U.S.A.

Extended applications to new freight stock, and conversions of vehicles originally fitted with journal bearings



Union Pacific Railroad livestock wagon fitted with roller bearings

THERE is an increasing tendency in the U.S.A. to adopt roller bearings for all railway rolling stock, whether locomotives, passenger carriages, or freight vehicles, and this suggests that certain obstacles which prevented the earlier use of such bearings are being overcome.

The factors which retarded this development were most probably: (*a*) high first costs; (*b*) difficulties connected with the interchangeability of equipment; and (*c*) a natural caution in deciding in favour of a type of bearing relatively little used in comparison with journal bearings. The latest direction in which this change-over is taking place is for the double-bogie freight wagon, which in various forms is universally used in American goods trains.

There are several large orders in course of fulfilment for roller bearings for this purpose, among which may be mentioned the following: 1,000 new 70-ton capacity hopper wagons for the Chesapeake and Ohio Railway; 500 new 50-ton refrigerator express vans for the Railway Express Agency (a joint organisation owned by the outstanding "Class 1" railways of the United States); and the conversion of 300 existing cattle wagons on the Union Pacific Railroad from plain journal to roller bearings.

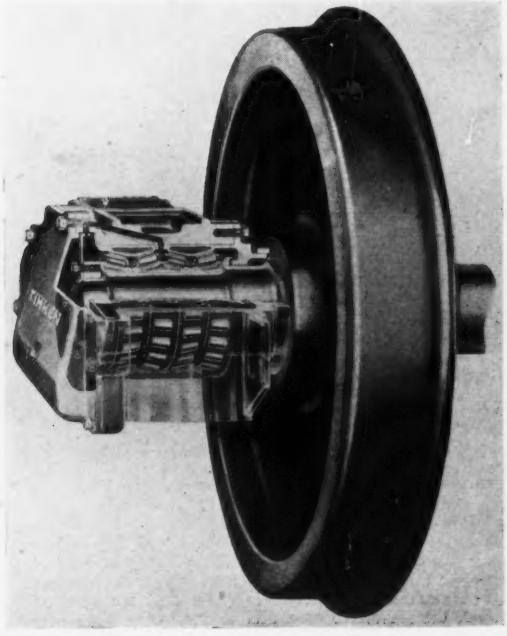
Of the above-mentioned freight-vehicle applications, the Union Pacific conversions are, perhaps, the most interesting, as they incorporate a new design of roller bearing which can be used in the existing space for an ordinary plain bearing, in bogie side-frames which have the axleboxes cast as an integral part of them.

To alter the bogie to take roller bearings, the dust-guard opening at the back of the axlebox has to be enlarged, and no other work is necessary. The box or "cartridge" containing the roller bearings is then inserted in the space formerly occupied by the plain journal bearings, the top of the new fitting being made the same as the plain bearing "wedge."

Timken roller bearing inserted in conventional journal box for Union Pacific Railroad livestock wagons

The advantages to be gained by this

An example of a Timken roller bearing enclosure intended for journal of Union Pacific Railroad livestock wagons



Four-row roller bearing interchangeable with ordinary journal bearings, which can be applied to existing axles without change

modification are substantial. On the American administration concerned, certain speed restrictions will be eliminated, enabling the livestock trains to be run at much higher speeds. In addition, the possibility of hot journals will practically vanish, and starting resistance will be reduced about 90 per cent.

New schedules for livestock trains will be inaugurated, giving almost passenger-train speeds. The westbound time will be reduced by more than 40 per cent., by cutting out the former stop at Las Vegas, Nevada, for watering and feeding. In future, the Union Pacific will be in a position to transport livestock non-stop from Salt Lake City to Los Angeles in about 32 hours, instead of the usual schedule of 58-60 hours.

The 300 vehicles to which roller bearings are to be applied are 40 ft. 6 in. long inside, 8 ft. 10 in. wide, and 9 ft. 4¼ in. high at the eaves. They were converted from box wagons in 1938, and have steel underframes and steel ends and roofs. Two hundred and fifty of them will be double-deck, with the upper deck 5 ft. 4 in. from the floor, to allow the transport of sheep and pigs; the remaining 50 are single-deck vehicles. The weights of the two types of vehicles are 45,800 lb. and 45,000 lb. respectively.

The roller bearings, supplied by the Timken Roller Bearing Company, consist of two single-row bearings running in an enclosure which has recesses cast on the sides, corresponding to the "thrust lugs" on the ordinary American axlebox, in order to take transverse loads and hold the wheels in proper relation to the bogie frames.

In addition to this important set of conversions for freight stock, roller bearings are becoming more widely used on passenger vehicles. The Timken company is to equip 400 new subway cars for the City of New York with roller bearings, and the same firm's "quad" or four-row bearing, which also can be interchanged with existing plain journal bearings, figures in an interesting application, namely, the private armoured coach used by the President of the United States. Roller bearings are now used also on the business coaches of presidents, vice-presidents, and other high officials of ten of the largest American railways.

G.W.R. Developments in Maintenance Equipment—11*

Diesel-driven mobile crane with alternative types of jib

THE Jones Super 22 mobile crane is self-propelled and capable of pulling loaded railway wagons; the jib can be rotated through a complete circle, and is self luffing, the power for all operations being supplied by a 9-h.p. diesel engine. The crane thus is generally useful in Engineering Department yards for loading or unloading wagons, and similar jobs, or in the erection of small bridgework.

The crane, which is marketed by T. C. Jones & Co. Ltd., of 93-95, Wood Lane, London, W.12, weighs approximately 6 tons, and can be supplied with either solid or pneumatic tyres. The two types of jib available are shown in the illustrations below.

* Previous articles in this series appeared in our issues of April 4 and 25, May 2, 9, 16, and 23, June 6, 13, and 20, and July 4

Alternative Jibs

The cantilever type of jib can be depressed to give the low overall height of 10 ft. 3½ in., which permits operation in restricted headroom, or transport by rail on a low wagon without dismantling. The lattice type, by reason of its greater length, permits the load to be lifted to a greater height, or a light load to be handled at a greater radius, than would be possible with the cantilever jib, although the load which can be handled at a given radius is the same for both types of jib.

The properties of the crane according to the type of jib fitted are compared in the table below, radii being measured from the centre of the undercarriage, which is 8 ft. 6 in. by 6 ft. over the wheels:—

Load		Radius	Height of lift. Cantilever jib	Lattice jib
Tons	Cwt.	Ft.	Ft. In.	Ft. In.
2	—	8	17 0	20 9
—	14	15	7 10	19 6
—	7	20	Beyond capacity	15 0

Crane with cantilever jib operating from the rail wagon on which it has been transported. Note good view obtained from driver's cab.

Lattice jib crane running on pneumatic tyres

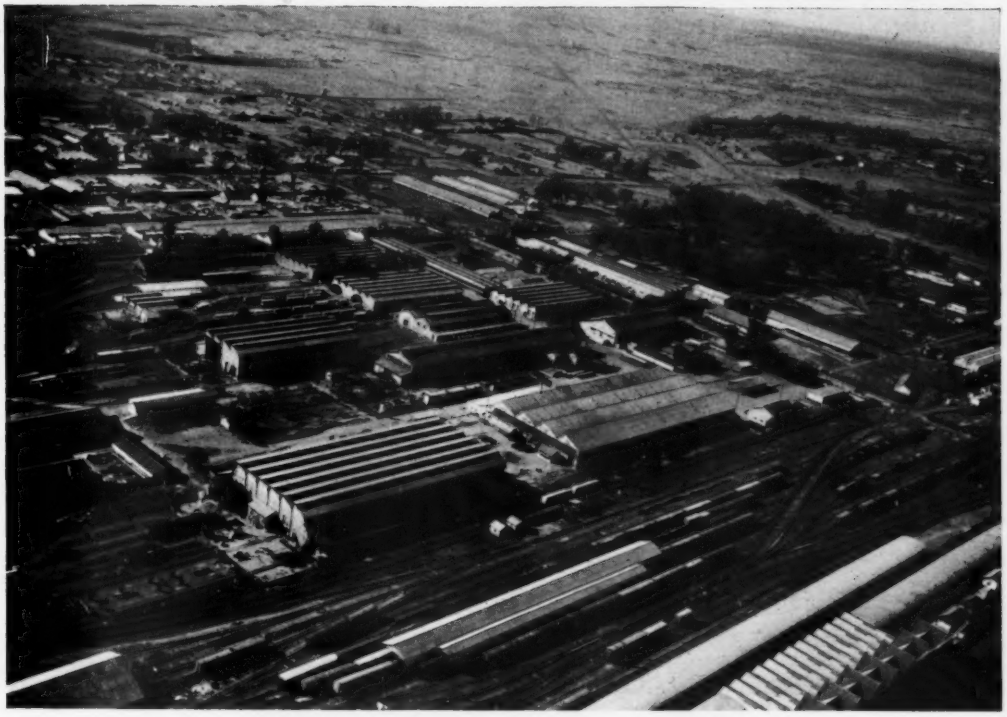
SOCIETY OF BRITISH PAINT MANUFACTURERS.—Speaking at the annual meeting of the Society of British Paint Manufacturers on November 11, the President, Mr. C. G. Heywood, said that there was a very noticeable trend in overseas countries towards national self-sufficiency in paint, but, though the shrinkage of available export markets for British products was a matter for regret, many paint manufacturers had foreseen this possibility 25 years ago, and results in recent years had endorsed the wisdom of the policy they had subsequently followed. He, personally, believed in combining local manufacture for certain qualities of paints with exports from this country of intermediaries, which would enable them to maintain a measure of technical control locally and ensure an expanding market at least until such time as technical competence justified full production in the overseas countries concerned.

Also, this policy would ensure the export of certain high-grade products for discriminating users, particularly in the field of transportation.

LIVERPOOL OVERHEAD RECEIPTS.—For the 11 months to November 30, the total receipts of the Liverpool Overhead Railway were £134,832, a decrease of £8,070 compared with the preceding year. Receipts in the week ended November 30 were £2,718, as against £2,715 in the corresponding week of 1946.

Kenya & Uganda Railway Workshops

(*See also next page*)



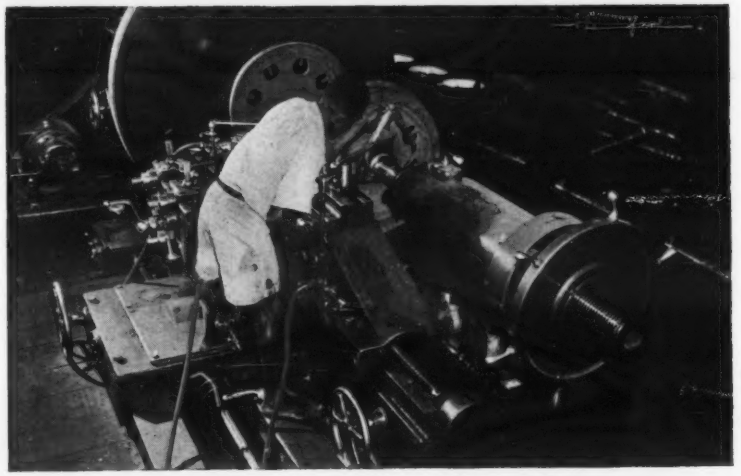
Mechanical workshops and stores area at Nairobi

Aerial view of the Nairobi marshalling yards and locomotive shop

Scenes in the Kenya & Uganda Railway Workshops

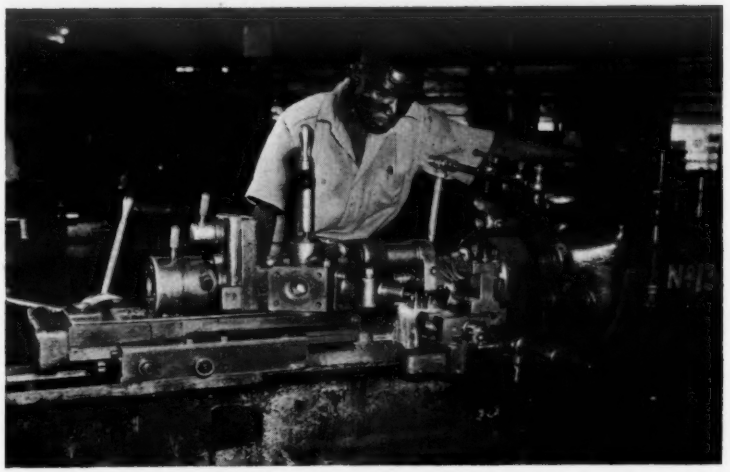
(*See also previous page*)

Boiler-shop riveter at work



Working a journal lathe in the wheel shop

African artisan operating a milling machine



Capstan lathe in the locomotive machine shop

RAILWAY NEWS SECTION

PERSONAL

Mr. Alfred Barnes, Minister of Transport, has recovered from pneumonia and pleurisy, and is resuming his duties.

Mr. E. C. Eyers, Secretary for Railways, State of Victoria, for the record period of 24 years, has retired. He is succeeded by Mr. B. Kelly.

We regret to record the death on December 14, at the age of 80, of Earl Baldwin of Bewdley, who was three times Prime Minister. He was from 1908-17 a Director of the Great Western Railway Company, of which his father had been Chairman; Lord Baldwin's son, Mr. Arthur Windham Baldwin, is at present a Director of that company.

Mr. J. R. Naisby, Director of the Publicity & Travel Bureau, South African Railways & Harbours, at South Africa House, London, is sailing for South Africa on January 1 next on a temporary official visit. Mr. P. A. Euvrard, hitherto Private Secretary to the Minister of Transport, South Africa, has recently been appointed Assistant Director, Publicity & Travel Bureau, S.A.R.H., London; and he will be acting for Mr. Naisby during his absence.

We regret to record the death on December 6, at the age of 73, of Mr. R. P. Sloan, C.B.E., M.I.E.E., a member of the Central Electricity Board since 1936, and a Past-President of the British Electrical & Allied Industries Research Association.

The chief officers of the London Passenger Transport Board gave a dinner at Claridge's Hotel recently for Lord Ashfield, in connection with his appointment as a member of the British Transport Commission. Mr. John Cliff was in the chair.

Sir James Milne, K.C.V.O., C.S.I., B.Sc., M.Inst.T., General Manager of the Great Western Railway, who, as recorded in our December 5 issue, is resigning from that position as from December 31 next, was born in 1883. He entered the company's service as a pupil in the Locomotive Department in 1904, and, after passing through the Swindon shops, mechanical laboratory, and drawing office, transferred to Paddington. He had experience in the Office of the Superintendent of the Line, and afterwards in the General Manager's Office; in 1912 he returned to the former office, where he took charge of the Passenger Train Running Department. In January, 1916, he was appointed Chief Clerk to the Divisional Superintendent at Pontypool Road, and later was for a short period Acting Divisional Superintendent, Swansea. In 1917 he became Assistant Divisional Superintendent, Plymouth. In September, 1919, his services were requisitioned by the Minister of Transport, under whom he was Director of Statistics. On January 1, 1922, he was appointed Assistant to the General Manager, G.W.R., and in the next April became Principal Assistant. Later in the same year he was selected by Lord Inchcape to assist the Indian Retrenchment Committee, and he was one of the co-signatories to its report. In April, 1923, he returned to Paddington, and he received the honour of the C.S.I. in the King's Birthday Honours of that year. In March, 1924, he was appointed Assistant General Manager, and in July, 1929, he succeeded Sir Felix Pole as General Manager. In January, 1932, the honour of knighthood was conferred on him, and in the New Year Honours of 1936 he was created a K.C.V.O. Sir James Milne has been a member, since its inception, and Deputy-Chairman since 1941, of the Railway Executive Committee, and has taken a leading part in dealing with the numerous difficult problems incidental to the conduct of railway operations during the war and post-war periods. In 1940 he was elected a Director of the Great Western Railway Company (retaining the General Managership), but at the annual general meeting of the company in 1941 the Chairman announced that Sir James felt obliged to resign from the board as soon as his election had been ratified, in deference to the wishes of the Minister of Transport, who had intimated that he could not see his way to accept a director of the railway company as a member of the Railway Executive Committee, yet wished Sir James to remain a member of that body. The Chairman added that he had assured Sir James that his seat would be kept vacant in the hope that he would be able to fill it in happier times. Sir James Milne is a former Member of Council, and a former Vice-President, of the Institute of Transport. He is Chairman of Hay's Wharf Cartage Co. Ltd., Pickfords Limited, and Carter Paterson & Co. Ltd., and a Director of Thos. Cook & Son Ltd., and of the following railway-associated bus companies:—Birmingham & Midland Motor Omnibus Co. Ltd., City of Oxford Motor Services, Limited, Crosville Motor Services Limited, Devon General Omnibus & Touring Co. Ltd., Thames Valley Traction Co. Ltd., Western National Omnibus Co. Ltd., and Western Welsh Omnibus Co. Ltd. When, at the end of 1944, Sir James Milne vacated the Chairmanship of the General Managers' Conference, Railway Clearing House, he had had six successive years in that position; he had been Chairman of the conference when war broke out, and at the unanimous wish of his colleagues he continued in that capacity, and by doing so he established a record length of tenure of the office. Sir James Milne will be joining the board of the Leopoldina Railway Co. Ltd. on January 1 next.

Sir James Milne
General Manager, Great Western Railway, 1929-47

LONDON TRANSPORT APPOINTMENTS

The L.P.T.B. announce the following appointments:—

Mr. G. F. Sinclair, Deputy General Manager, Road Services, to be Chief Technical Planning & Supplies Officer (for technical planning, Mr. Sinclair to be directly responsible to the Acting Chairman of the Board).

Mr. P. G. James, accountant, to be Chief Accountant.

Mr. F. G. Maxwell, Assistant to the Operating Manager (Railways), to be Operating Manager (Railways).

Mr. J. H. F. Benford, Fares & Charges Officer, to be Commercial Manager.

London Transport Executive

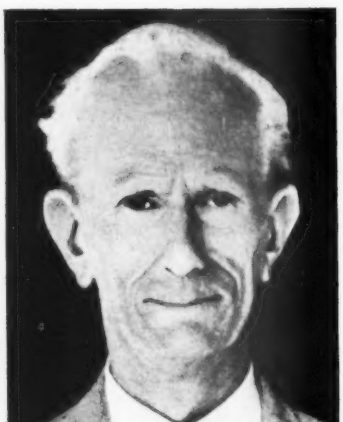
Mr. C. G. Page, Secretary & Chief Legal Adviser of the London Passenger Transport Board, has been appointed Secretary of the London Transport Executive.

Mr. H. S. Chapman, Assistant Secretary, L.P.T.B., has been appointed Assistant Secretary of the London Transport Executive.

Mr. E. A. Langham has relinquished his position as Sales Manager, in the Sales Division, of the British Aluminium Co. Ltd., to take up a new appointment as General Manager for the company in India. Mr. Langham left recently for India. Mr. A. W. Langham, who has been Manager of the Sales Planning Department, will, for the present, undertake responsibility for the Sales as well as Sales Planning Departments in the Sales Division, with the title of Sales Manager.

Capstan lathe in the locomotive machine shop
African artisan operating a milling machine

Mr. H. E. Cox, M.I.R.S.E., Deputy Chief Engineer (Signals), Great Indian Peninsula Railway, who proceeded on leave prior to retirement on November 14 last, joined the Great Western Railway in 1910 as a premium pupil of Mr. A. T. Blackall, then Signal Engineer. He entered the service of the Great Indian Peninsula Railway in 1915 as an Assistant Signal Engineer, and was appointed Chief Assistant in 1921. While on leave in England in that year he was placed on special duty to report to the London board of the then company on automatic train control. During 1926-30 he was Assistant-in-Charge of the power signalling construction works in the Bombay suburban area, which included the installation of automatic signalling and colour light signals, opened in 1928. In 1935 he was appointed Deputy Chief Engineer (Signals). Mr. Cox has been a frequent contributor to the Indian Railway Board's *Quarterly Technical Bulletin*; and in 1940 he presented a paper before the Institution of Railway Signal Engineers describing in detail the development of signalling on the G.I.P.R. In January, 1942, he brought into service the first installation of double wire interlocking on his railway, which has been followed by several other installations. He has been Chairman of the Railway Board's Signalling & Interlocking Standards Committee for the past twelve years; has had three yearly terms as Chairman of the Signal Engineers' Committee, Indian Railway Conference Association; has served on several committees dealing with the revision of the Indian railways general rules; and in 1946-47 served on a committee reporting on automatic train control. He has been a member of the Signal Section, Association of American Railroads (formerly Railway Signal Association), for over 33 years.



Mr. H. E. Cox

Deputy Chief Engineer (Signals), Great Indian Peninsula Railway, who is retiring

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Mr. R. G. Booth, Assistant District Engineer, Darlington, L.N.E.R., who, as recorded in our November 14 issue, has been appointed District Engineer, Leeds, commenced his railway career at Leeds in 1916. After service in the R.N.V.R., he returned to Leeds in 1919. In 1928 he went to the office of the Engineer, North Eastern Area, L.N.E.R., and was engaged on detailed design of permanent way; and in 1929 he transferred to the office of the Chief Engineer for Docks at Hull, where he was engaged in general dock and harbour work. In 1930 Mr. Booth returned to the office of the Area Engineer at York, where he was concerned in the preparation of works in connection with widening the main line between York and Northallerton; he subsequently went to the Permanent Way Section on the design of point and crossing layouts, including the alterations at York Station. In 1937 he was appointed Head of the Permanent Way Section, dealing with all matters of permanent way design and maintenance; and in 1943 he was made Assistant District Engineer, Darlington.

Mr. J. H. Glendinning, M.C., B.Sc., A.M.I.C.E., Assistant District Engineer, Kings Cross, L.N.E.R., who as recorded in our November 14 issue, has been appointed District Engineer, Boston, entered the company's service in the Engineer's Office, Liverpool Street, in 1925. From 1926 to 1930 he was Assistant Resident Engineer on a number of contracts, chief of which was the opening-out of Hattersley tunnels between Sheffield and Manchester. From 1930 until the end of 1935 Mr. Glendinning was Resident Engineer on several contracts, of which the most important was the Gidea Park to Shenfield widening. In 1937 he became Assistant District Engineer, Stratford, and, in 1941, Assistant District Engineer, Kings Cross.

Mr. C. N. Morris, A.M.I.Loco.E., Assistant to Locomotive Running Superintendent (Eastern Section), Southern Area, L.N.E.R., who, as recorded in our November 14 issue, has been appointed District Locomotive Superintendent, Norwich, was educated at Doncaster Grammar School, and later received technical training at Doncaster Technical College. He joined the L.N.E.R. in 1927, and served an apprenticeship in the locomotive works at Doncaster, also gaining experience in the locomotive drawing office, before being appointed, in 1931, Junior Assistant to the Locomotive Superintendent, Stratford. Between 1932 and 1934 he held positions in charge of two small locomotive depots in the London area, and subsequently held appointments as Locomotive Shedmaster at various depots. In 1938 Mr. Morris was appointed Technical Assistant to Locomotive Running Superintendent, Southern Area, and, in 1942, Assistant to District Locomotive Superintendent, Ardsley. In the next year he became Locomotive Depot Superintendent, Grantham, followed by a short period as Assistant District Locomotive Superintendent, Gorton; and he was appointed Assistant to the Locomotive Running Superintendent (Eastern Section), Southern Area, in 1945.

We regret to record the death on December 10, at the age of 75, of Sir William J. Talbot, Chairman of the Talbot-Stead Tube Co. Ltd.

Mr. O. A. Pallett, Supervisor of Purchases, British Thomson-Houston Co. Ltd., has been appointed Chairman of the Associated Electrical Industries Group Purchasing Committee, on Mr. J. Billington's retirement on December 31.

Mr. R. G. Booth

Appointed District Engineer, Leeds, L.N.E.R.

Mr. J. H. Glendinning

Appointed District Engineer, Boston, L.N.E.R.

Mr. C. N. Morris

Appointed District Locomotive Superintendent, Norwich, L.N.E.R.

Message from the Minister of Transport to the L.N.E.R.

Mr. Alfred Barnes, Minister of Transport, has contributed the following message to the December, 1947, issue of the *L.N.E.R. Magazine*:—

I desire to express my appreciation of the services rendered by the London & North Eastern Company and by all grades of staff working under it to the transport of the country in the past. I recognise the great traditions created and maintained by the undertakings to be transferred under the Transport Act, and I am confident that all that is best in those traditions will be maintained by those who will shortly become officers and servants of the British Transport Commission.

Sir Ronald Matthews' Message to L.N.E.R. Staff

Sir Ronald Matthews, Chairman of the London & North Eastern Railway Company, has contributed the following message to the *L.N.E.R. Magazine*:—

With this number of December, 1947, the *London & North Eastern Railway Magazine*, as we have known it for the last twenty-one years, comes to an end. Throughout its life it has been the mirror of every form of social activity on the railway, and the vehicle for the literary aspirations of many members of the staff. Ably edited and admirably produced, it has earned the gratitude of a generation of railwaymen and women, and though in future there must be changes in its cover, I hope its contents may continue to delight and inform a host of railway readers.

But the sad fact remains that to the *L.N.E.R. Magazine* we must say "Goodbye," and with it to the railway which for a quarter of a century so many of its readers have served with distinction and affection. It is never an easy thing to bid irrevocable farewell to persons and things that one has loved, and there will be many, old and young, who, irrespective of political predilections, will regret the passing of the L.N.E.R. Certainly no one more than I, who for nine years have had the honour of being its Chairman and of being in daily contact with the men and women of all grades who added such lustre to the railway service during the war years. From the epic heroism of Driver Gimbert and Fireman Nightall in the early hours of June 2, 1944, at Soham, to the grim endurance of thousands of unnamed men and women working day and night in the heart of the blitz, the shining pages of railway history unfold themselves in stories which make one proud beyond measure to be a member of our great brotherhood.

But the war years, though they brought imperishable laurels to the railways of Britain, delayed many schemes of improvements which had been worked out for the benefit of the public and of our own staffs. Even now, after two years of transition from war to peace, shortages of manpower and materials, to say nothing of the nation's financial difficulties, are making progress painfully slow. But for the war, the schemes of electrification between Manchester and Sheffield, and in the London Suburban area, would have been completed, and many millions of pounds would have been expended on company's houses; on staff amenities and on station improvements; on new locomotives, wagons and carriages; on great new marshalling yards and docks. However, for our own satisfaction, let me record a few of the notable things which the L.N.E.R. has achieved.

In 1924 we inaugurated the first regular train-ferry service to the Continent, *via* Harwich and Zeebrugge. In 1928, the "Flying Scotsman" between Kings Cross and Edinburgh first made the longest non-stop run in the world. In 1933, we introduced the first camping coaches and the luxury cruising train, the "Northern Belle." In 1935 came the "Silver Jubilee," the first streamlined express train in this country, which performed the journey between Kings Cross and Newcastle in 4 hours; followed in 1937 by the "Coronation," which ran from London to Edinburgh in 6 hours, and the "West Riding Limited" between Kings Cross and Leeds and Bradford. We gained the world's speed record for steam traction of 126 m.p.h. with the Gresley "Pacific" locomotive *Mallard*

We may well claim that, despite the trade depression between the wars, and the ravages of road competition, a progressive management introduced notable improvements in our affairs. And now, with this proud record and these great traditions of service to the nation behind them, many go forward into a future of immediate difficulties which one can only hope will be lessened with the passage of the years.

I should be failing in my duty to the public and to railwaymen themselves if I did not make it clear that the change of ownership brings no lightening of responsibility. Whoever owns the capital, the railways are there to serve the public and the public interest is paramount. There can be no doubt that for railwaymen, playing their vital part in the national struggle for survival, there lie ahead long laborious days, but the railways have never failed the country and they will not fail it now. That I know, and in that knowledge I offer to all those men and women who have served the L.N.E.R. so faithfully and well my heartfelt thanks, and to those who go forward into the new railway world my warmest wishes for their happiness and wellbeing.

Viscount Portal's Farewell Message to G.W.R. Staff

Viscount Portal, Chairman of the Great Western Railway Company, has contributed the following farewell message in the December issue of the *Great Western Railway Magazine*:—

On January 1 next the undertaking of the Great Western Railway Company becomes vested in the British Transport Commission, and the change of ownership brings to an end the administration of the company's affairs by a board of directors, a system which has operated continuously for 112 years. In that long period, which has witnessed both good and bad times, the company has established honoured traditions which have earned for the Great Western the respect and affection of many. Perhaps what we cherish most is the reputation associated with the company for courtesy to the public, fostered from the very earliest days by those responsible for guiding the company's destinies, and put into practical effect by generation after generation of the staff whose helpfulness in difficult conditions is now a by-word.

In matters affecting the welfare of the employees, the policy of the directors has always been to show practical sympathy, and the board is gratified to know that their pension and other similar arrangements were inaugurated long before the State schemes were introduced.

I myself naturally feel the forthcoming changes, as I am the third generation of a family which has been intimately connected with railway affairs, and I know these sentiments are shared by my colleagues on the directorate and by many others. The heartfelt wishes of the board for success and future happiness go to all members of the company's staff, and I am confident that in the new organisation they may be relied on to give of their best as they have always done in the past.

Sir James Milne's Farewell Message

Sir James Milne, General Manager of the Great Western Railway, has contributed the following farewell message in the *Great Western Railway Magazine*:—

During the eighteen years for which I have had the honour of being General Manager of the company many changes of a wide and varied character have occurred in almost every branch of the company's activities, and thanks to the co-operation of all concerned they have been met satisfactorily.

We are now faced with the greatest change of all, nationalisation; and, as a consequence, the Great Western Railway Company, which has existed for 112 years, will cease on January 1, 1948, to have a separate entity. When this momentous change takes place I am confident that all members of the staff will make an important contribution to the well-being of the country. Every possible effort will be needed to make the new administration a success, and I know that, in the duties entrusted to you, you will worthily uphold the traditions which have so long been associated with the name of our great company.

Although I shall no longer be with you, I shall always remember with gratitude and esteem the loyal co-operation and support which I have at all times received from the officers and the staff in the good and bad periods through which we have worked together. I extend my warmest thanks and good wishes to you all and I trust that the future may bring prosperity and happiness to you.

Sir Robert Burrows' Message to L.M.S.R. Staff

Sir Robert Burrows, Chairman of the London Midland & Scottish Railway Company, has contributed the following message, on behalf of the company's directors, to the December issue of *Carry On*, the L.M.S.R. staff news magazine:—

The British Transport Commission will, on the first of next month, assume control of all the railways in Great Britain, and the L.M.S.R., as such, will disappear, and the directors will cease to hold office. I have been asked by my fellow directors to send to *Carry On* a message to the staff of the L.M.S.R., and this I gladly do. The board of directors wishes me to convey to everyone connected with the L.M.S.R. their most grateful thanks for the loyal support they have always received from all grades of the L.M.S.R. staff, whereby the well-being of the railway, and its users, has been secured.

The directors naturally are sorry to relinquish their close and intimate association with the manifold activities of our great company: they feel, however, that those whose duty it will be to conduct the affairs of the railways in the future can confidently count on the same keen unselfish service that has always been given in the past by the railwaymen of Great Britain. To the individuals who make up the staff, some known personally, but many unknown, I wish to send on behalf of the directors their most sincere good wishes for thetr future health, happiness and success under the new *regime*.

No. 2 Railway Training Centre, R.E. The second "re-union" of officers posted to H.Q., No. 2 Railway Training Centre, Royal Engineers, the offices and officers' mess of which were in the L.M.S.R. School of Transport building at Derby, took place recently. Twenty-five officers were able to be present, and the L.M.S.R. placed facilities at their disposal, enabling those who lived too far away to spend the night in their old quarters. The enthusiasm of those present showed determination to keep alive the comradeship practised at No. 2 R.T.C., R.E. It was proposed to form a dinner club to assist the organisation of future re-unions; and it was proposed also that all officers posted to No. 2 R.T.C. H.Q. or posted to the units which formed part of the centre should be eligible for membership; officers whose presence in the centre was for the purpose of being trained will not be eligible unless they were subsequently posted to H.Q. or one of the constituent units of the centre in either an instructional, administrative, or executive capacity. Any officer who has not been individually approached, and is interested and eligible, should send his name and address to Miss B. D. Cramp, L.M.S.R. School of Transport, Derby.

Mr. A. P. Fox is retiring from the position of Managing Director of Scammell Lorries Limited at the end of the year, remaining a Director. Mr. W. E. Pearson, General Manager, will be appointed Managing Director.

Mr. E. S. Bailey and Mr. G. C. Downing, of Specialloid Limited and the Aero Piston Ring Co. Ltd., respectively, have been appointed to the board of Specialloid (Canada), Limited, Mr. E. S. Bailey in the capacity of Vice-President, and Mr. G. C. Downing as Director & General Manager.

Institution of Railway Signal Engineers

Inauguration of Australian Section

At a meeting held in Sydney on November 14, 1947, an Australian section of the Institution of Railway Signal Engineers was inaugurated, the chair being taken by Mr. W. F. Barton, Signal & Telegraph Engineer, New South Wales Government Railways. Signal engineers from other States in the Commonwealth were present, and also Mr. C. B. Byles, a former Signal Engineer of the N.S.W.G.R., and Honorary Secretary of the Institution of Signal Engineers (the predecessor of the present body) when it was founded in 1910.

Mr. Barton, addressing the gathering, referred specially to the presence of Mr. Byles, "one of the pioneers of modern signalling practice," and stressed the debt owing to the President of the institution, Mr. F. L. Castle, for the great interest he had taken in establishing the section and the encouragement he had given them in Australia in their efforts to make the association useful there.

Their meetings and discussions dealing with mutual problems would be of individual benefit and help them as a body in the solution of their difficulties, at the same time benefiting signalling and railway operation. It was desirable that they should consider what were the objects to be attained by their section of the institution, and what they could do to assist in promoting within Australia a greater appreciation amongst railway organisations of signalling as an integral part of efficient railway operation. As individuals they should not ask themselves what benefits could be obtained by the creation of an Australian section; rather should they devote their energies to seeing what could be done to further the application of signalling, applying their talents to the many and great tasks which arose in modern railway operation without waiting for requests from the operating sections.

"If signalling is to fill its rightful niche," continued Mr. Barton, "it is essential that the creative minds of the signalling men be used to formulate signalling schemes based on present-day requirements, using modern equipment and meeting the ever-changing needs of the railway world."

The following is an abstract of the main parts of the rest of Mr. Barton's address, which received a warm welcome from his hearers.

Progress in America and England

We see evidence every day of the progress in America in signalling organisation and admire the manner in which the signal engineers and signal manufacturing companies get together, work out their problems and put their schemes into practical effect. This has been accomplished by long and ardent efforts properly co-ordinated, with the result that in America today the operating staff and administrations have implicit and complete confidence in signalling as a means of handling safely and expeditiously any class of transport; consequently, money is always available for signalling projects in such amounts that the signalling world is well in the forefront as a force to be relied on, and it can be stated safely that in that country it is filling its rightful place.

The Signal Section of the Association of American Railroads—originally the Railway Signal Association—with its many committees dealing continuously with all sections of signalling work, has set standards which are always in process of alteration to meet changing conditions, with the result that no problem arises that cannot be dealt with satisfactorily. In England the Institution of Railway Signal Engineers has followed somewhat similar lines to the American association and, although the changes have not been quite so spectacular, the results are apparent in the progress that has been and is being made in modern signalling installations in that country.

The Position in Australia

What have we accomplished in Australia and what can we do to follow these examples? The field is open and, without in any way disparaging what already has been done in the various States, I think that Australia has a great leeway to make up. In New South Wales we are fortunate in having been able over the years to maintain a signalling branch under its own head as a separate branch organisation, with direct responsibility to the Commissioner for Railways. This, to my mind, is the only satisfactory arrangement. The Signal Engineer is not directly concerned with what the Chief Civil Engineer does on the tracks, structures and buildings. He is, however, vitally concerned and associated with traffic operations, and the perfect combination is the Chief Traffic Manager and the Signal Engineer, working in close collaboration, but with separate branches.

It is a source of great satisfaction in this State to have this arrangement in full operation. It ensures perfect co-ordination between the Traffic and Signalling branches so far as train operation is concerned, whilst maintaining both as separate branch organisations. Unfortunately the other States are not in the same happy position. We hope that the day is not far distant when, at least in the larger States, the commissioners will recognise the importance of signalling and give the signal engineer the status of the head of a separate branch organisation.

It was intended originally to form a New South Wales Section of the institution. The other States, however, have come to our aid, and we are happy in what has been accomplished in launching an Australian Section. We are fortunate, also, in having in Australia firms representing English and American manufacturers of signalling material, and we, as signalling men, fully recognise the importance of encouraging these firms to establish within Australia works that can fulfil all signalling requirements.

By alternating the place of meeting, a federal spirit should be created, with an interchange of ideas and experience which can result only in a better understanding between the interstate officers and help to place signalling more prominently and to greater advantage before the eyes of the railway commissioners. By the circulation of standards and the interchange of works programmes between the various States, much can be done to stimulate progress in the directions desired.

I am sure the members will agree with me that we should devote some of our energies to the encouragement of the young men who are taking up signalling as a career, and endeavour to adopt standards for the training of the staff employed on signalling work. Much has been done, but there is scope for doing much more in this regard.

The use of radio on railways has embraced a wider field than the telegraph and telephone, and justifies the use of a more inclusive term, "communication." This forms an important section of signalling and is a direction in which great progress is possible. The communication system compares to the railway much as the nervous system compares to the human body. It appears a matter of regret that some of our communication engineers—men specialising in modern communication systems—have not joined up with us, and I express the hope that we may get them interested in the near future.

The invention of the Morse telegraph over 100 years ago marked the first great advance in railway signalling on the communication and train despatching side. The telephone followed. The Morse is now being superseded rapidly by the printing telegraph and carrier telephone systems, providing, as they do, so many additional circuits; and the fact that the quality of these derived circuits is a great improvement over physical circuits makes it desirable that signal engineers should have with them skilled communication engineers, capable of taking advantage of the constant progress that is being made in the design, manufacture, and operation of carrier circuits. This definitely is a direction in which we in Australia can use our best efforts and skill to see that the railways make full use of these developments.

The carrier system can be extended further by its application to the centralised traffic control equipment, and this presents a wide field for signal engineers in the future. It is of interest to note that a recent test of the use of radio as a medium for the transmission of centralised traffic control signals was carried out for several hours, on three or four different days, on a 60-mile section of the Pennsylvania Railroad C.T.C. territory, operated on the New York-Philadelphia radio relay chain, with satisfactory results. At the same time, the relay system was carrying its normal traffic load of telegraph channels.

Recent Developments

Radio is not entirely a new development in railway work. In Australia the field is fully open. Our first step should be to see that we can obtain suitable radio frequencies to meet the needs of all the States. Having established them, we can look forward to making good use of this means of communication, and it is reasonable to assume that there will be rapid development in this direction. It is not suggested that the simple application of radio to train operation will prevent all train accidents. It can, however, be applied to supplement our present signalling systems and safety devices, in that it will be possible to give preliminary warning to enginemen of any irregular condition to be guarded against by prompt action.

Radar at present is too directional to have any direct application, but there is every probability that there will be great improvements in radar, and we, as signal engineers, should keep ourselves actively posted in the progress made. The radar principle has been applied with success to the location of faults on open-wire communication circuits, and this application can be extended.

Maintenance Problems

Efficient maintenance must be provided if signalling is to function satisfactorily and meet requirements. No matter how good the system and equipment, the human element—the maintenance staff—must not create a weak link. Associated with maintenance is the question of intensive training of the staff. This should be done from the apprenticeship stage upwards, with such

adequate inducement that the best class of labour can be recruited. Experience has shown that signalling requires on the part of the employee engaged on it adaptability and skill of a high standard. We should make it an essential part of our organisation that we encourage the student members to take an active interest in our section and join in our discussions.

There appears every probability that in the not too distant future the unification of railways in Australia will become an established fact and, associated with this work, signalling will play an important part. It is desirable, therefore, that it should conform to a uniform standard throughout the whole of the States, and I feel that the committee appointed, representative as it is of both the signalling sections of the various State Railway departments and of the manufacturing firms, will be able to prepare signalling standards for the whole of Australia, to harmonise with the best English and American practice and meet the requirements of unification.

Summary of Discussion

Mr. Barton's address was followed by a short discussion, in which Mr. C. B. Byles referred to the first meeting held in London in February, 1910, to consider the forming of a signalling institution. Signalling and telegraphs were in separate departments then, and an institution was needed where discussion would enable members to speak openly about their work and the problems associated with traffic movements. It was decided to adopt as a motto the Greek words *Sema phero telauges*, or "I bear a far-shining sign," embracing both signal and telegraphic activities. Unfortunately the first constitution was found to contain a flaw and had to be abandoned.

Mr. W. Forrest, Signal & Telegraph Engineer, Victorian Railways, thought that the institution had a great deal to do. Standardisation alone could occupy plenty of their attention. They would welcome some measure of uniformity, both English and American designs being manufactured in Australia. The forming of the section was a step in the right direction. Younger men especially would benefit from an exchange of information.

Mr. J. P. Fahey, Chief Assistant to Mr. Barton, referred to the progress to be achieved in the telecommunications field, and instanced the co-operation under which a scheme had been prepared to connect Spencer Street Station, Melbourne, with Sydney Station on his system.

Mr. J. B. Jacobson, of McKenzie & Holland, who was elected Vice-Chairman, stressed the importance of the Chairman's address in the signalling annals of the Commonwealth, and said it left much room for thought, and Mr. W. Stewart, also of McKenzie & Holland, a member of the committee, supported the plea for standardisation. "Break of gauge" had been abolished as regards communications between Sydney and Melbourne, and perhaps the permanent way now would follow that lead.

He knew that the home organisation of the institution would welcome papers from Australia, where signalling and communications were as advanced as anywhere in the world.

Great Indian Peninsula Railway Annuities.—It was recently notified that on November 1, 1947, a total sum of £29,342,670 16s. 11d. was invested for the purpose of providing a sinking fund in respect of the annuities, class "B."

The "Coronation Scot"—A Railway Development*

Mr. R. A. Riddles describes his experiences with the "Coronation Scot" train in Britain and America

To most people a new locomotive or a new train is just a passing novelty, interesting to compare with its predecessors and to observe in its initial performance, but after that, merely routine equipment. To those who are concerned with the planning and execution of the job right through from the first drawings to the introduction into regular service, however, it is not only a matter of some importance but often a period of alternating anxiety and jubilation, culminating—we hope— in the triumph of a successful début.

In 1930/31, trade depression and strenuous road transport competition were seriously affecting railway revenues, and numerous schemes were being studied to retain existing traffic and if possible to attract more. On the L.M.S.R., a salient feature of our programme was to be the provision of more trains, faster trains, and more attractive trains. Could we, for instance, as a commercial proposition, run through from Euston to Glasgow, 400 miles, without an intermediate stop?

Advent of the L.M.S.R. Pacifics

Before 1933 we had no locomotive that could do this journey as a regular performance, but Sir William Stanier, who was then the Chief Mechanical Engineer of the L.M.S.R., faced the task of designing one, and the outcome was *The Princess Royal*, a Pacific type locomotive, with four cylinders, 250 lb. per sq. in. pressure, and a tractive effort of 40,300 lb. This locomotive and two sister engines were built in 1933, and at Crewe, where I was Assistant Works Superintendent at the time, we worked hours, literally day and night, to get the prototype ready for inspection by the directors at Euston.

The next question was whether the new locomotive would fulfil the job for which it had been designed. A carefully planned series of build-up tests was carried out on various routes with different loads, and in due course a special timetable was drawn up for a run from Euston to Glasgow, 401½ miles in six hours. This required much detailed organising, both from the point of view of traffic (the timings of some 200 other trains having to be adjusted for the down journey alone), and in the preparation of the engine, which was No. 620, *Princess Elizabeth*.

Before this time most curves were laid in as circular curves, with half the required cant being developed on the straight, and an undesirable roll was probable. With modern methods a proper transition curve was introduced in which the radius is attained in "straight line" progression. As the true radius of the curve is reached, so is the cant applied at the same rate, and therefore with a modern curve, entered at designed speed, no excessive thrust outwards or inwards takes place. The engineers were faced with the problem of redesigning these curves, originally intended for speeds of 60 to 75 m.p.h., to enable speeds of 75 to 90 m.p.h. to be run. They had six months in which to do it, and they did the job.

Nothing less than a new luxury train could be used for the proposed "Coronation Scot" service, so in 1937 a new train was built. To honour the Coronation of King George VI, the locomotive and the carriages were painted blue with silver lines or bands. The engine, a new Pacific, was streamlined to give at least an appearance of speed, and as we now had all the potentialities, an attempt was made to see what could be done.

On June 29, 1937, at 9.50 a.m., we set out from Euston with the new "Coronation Scot" train on its Press demonstration run. I was fortunate to be on the footplate, and with my diagrams laying down the postulated speeds, all was set to make an attempt on the world's maximum speed record at Whitmore, where, after a short rise, we entered on a falling gradient down to Crewe, 10½ miles away. We had decided not to pick up water from the troughs at Whitmore and so avoid reducing speed. The exhaust was humming with a continuous roar like that of an aeroplane engine. The white mile-posts flashed past and the speedometer needle shot up through the "90's" into the "100's," to 110-111-112-113-114 miles per hour, but beyond it—No!

Basford Hall sidings 1½ miles away now, spectators from Crewe coming into view on the lineside, and the train still hurtling at 114 m.p.h. On went the brake, off the regulator; but on we sailed, with flames streaming from the tortured brake-blocks. The signal for Platform No. 3 at Crewe, which has a reverse curve and a 20 m.p.h. speed restriction, came in sight. We were doing 60 to 70 m.p.h. when we spotted the platform signal. The crockery in the dining car crashed. Down to 52 m.p.h. through the curve, the engine riding like the great lady she is. There wasn't a thing we could do but hold on and let her take it. And take it she did; past a sea of pallid faces on the platform we ground to a dead stand, safe and sound and still on the rails. We had set up a new world's speed record for the steam locomotive.

On our return journey we touched a moderate 100 m.p.h. at one point, but the overall time for the 158 miles was only 119 minutes, a shade under an average of 80 m.p.h. The "Coronation Scot" train shortly afterwards went into regular service between London and Glasgow and became most popular, running with considerable success with a good record of punctuality and reliability until the war.

"Coronation Scot" in America

In response to the great interest which the Americans had shown in British railway operation, it was decided in 1938 to send a complete locomotive and train over to tour as much of the country as possible and to be exhibited at the World's Fair. Once again I had the privilege of accompanying the train, and expectations that the tour would promise to be a very intensive experience proved to be well-founded.

We loaded the train at Southampton and it arrived in February at Baltimore, where unloading took place in temperatures which varied from 74 degrees one day to 26 degrees the next. Ice formed on everything. Needless to say it was intensely cold, and the first major problem arose almost immediately when the driver contracted pneumonia and was laid up for a month. I decided I would do the firing and let the fireman do the driving. Our first day out with a trial run to Washington for Press purposes started at 6 a.m. and finished at 10.30 p.m. Unfortunately, British and American locomotives are designed to burn widely different types of coal, and that provided at Baltimore was

* Abstracted from Mr. R. A. Riddles' Presidential Address to the Junior Institution of Engineers on December 12

by our standards little more than slack. We had to refill the tender at Washington, and I compute that on that day we burnt 11 or 12 tons of coal (or dirt); I admit to having done a little driving *in lieu* of firing!

Touring under these conditions, even minor mechanical troubles were each a major headache. Our first trouble was a broken spring-bolt. This was made of manganese molybdenum, and there was nothing like it available locally, so we chose a valve spindle forging of similar tensile strength, and turned it down to make a bolt. At Harrisburgh our brick arch, of a new design, began to come adrift, and as we had the Allegheny Mountains ahead of us we had put in one of the two spare arches which we carried. The work was so badly done that a third arch was necessary; St. Louis looked to be a big centre where labour should be available, so I ordered the third arch to be ready there, but what a hope! A boiler-maker and his coloured mate turned up to meet us and offered themselves as the only ones available to do the job.

Meanwhile, three of the front rows of bricks of the arch already fitted were found on our arrival at St. Louis to have fallen into the firebox, forming a fused mass. Although by this time it was 1 a.m. and we had to be away by 9 p.m. the next day, I had to insist on breaking up the fallen arch and getting it out through the drop-grate—no easy task with bricks which were white-hot and too large individually to be dropped through the small opening without being broken down.

With the job done by 4.30 a.m., I got to the hotel, where from my appearance I should have been refused admission but for the magic name "Coronation Scot." I had a bath and some sleep; up at 8 a.m. for another bath, and off to the train to get hold of the Mayor and open the exhibition. To allow the engine to cool down, we waited until 2 p.m. before getting busy, but there was still a pressure of some 50 lb. of steam in the boiler. Only the boiler-maker would go into the fire-box, and there was only the boiler-maker, our own mechanic, and myself to see the whole job through. In we went, and suffice it is to say that three hours of heaving lumps of firebrick, some weighing 25 lb. and others up to 80 lb. (the whole arch weighs 17 hundredweights) inside a firebox with 50 lb. pressure of steam all round you is an experience not readily to be forgotten!

However, the job was finished by 5 p.m. and an hour or so later the fire was in again and all going well. Another bath, a rump steak and a bottle of champagne, and bed.

DRIVERS & FIREMEN CELEBRATION.—On Friday, December 16, representatives appointed by branches of the Associated Society of Locomotive Engineers & Firemen in all parts of England, Scotland, Wales, Northern Ireland, and Eire, foregathered at Grosvenor House, London, to celebrate the diamond jubilee of the society's *Locomotive Journal* and the 67th year of existence of the society. The Prime Minister accepted the invitation to head a list of guests from trade union and political labour movements, and from the railway service, which included also the Ministers of Transport and Labour. The first executive committee meeting of this society assembled formally in a private room at the Commercial Inn, Holbeck, Leeds, in March, 1881. The first number of *The Locomotive Journal* appeared in February, 1888.

Hay's Wharf Cartage Annual Staff Buffet Dance

On Wednesday, December 10, the directors of the Hay's Wharf Cartage Co. Ltd. and associated companies gave a buffet dance at the Connaught Rooms, London, W.C.2, to some 750 members of the staff and friends of the companies. This function replaced the purely staff dinner and dance which has been held formerly. A number of guests, including Sir Cyril Hurcomb, Chairman of the British Transport Commission, Sir William Wood, a member of the Commission, Mr. T. W. Royle, President of the Institute of Transport, Mr. H. G. Dutfield, Chairman of the Road Hauliers' Association, and many railway officers and representatives of traders attended the function, which marked not only the impending change of ownership of the Hay's Wharf group of companies, but also the recent retirement of Mr. W. J. Elliott from the General Managership of the Hay's Wharf Cartage Co. Ltd. Mr. Harold Elliott, recently appointed General Manager, presided.

Sir Cyril Hurcomb, who proposed the toast of the company, said that he proposed to say nothing about the future organisation of British transport, but he would like to pay his tribute to the long traditions behind the Hay's Wharf group of companies. Both Pickfords and Carter Paterson were household names. The history of the former went back over more than three centuries and the firm had been progressive since its earliest times. These two companies would shortly pass into the ownership of the British Transport Commission. He felt that there was no need to bewail this transition, which it would be necessary to see should be made in such a way as to conduce to the public good. He congratulated everyone concerned on the manner in which the companies have been brought to their present state of high efficiency and public esteem, and although changes must be made he was happy to know that the services of the leading personalities in the firm would be retained.

Mr. W. J. Elliott was not only one of the foremost road operators of our day, but he had always been a sound adviser on road transport matters behind the scenes. He congratulated Mr. Harold Elliott, and also the company, on the fact that he had succeeded his father in the General Managership.

In due course it would be necessary for the British Transport Commission to review the organisation of road transport, but that body had already asked Sir James Milne to continue as Chairman of Pickfords and Carter Patersons, and he was glad to say that he had agreed to do so.

Sir James Milne, who responded to the toast, thanked Sir Cyril Hurcomb, not only for the kindness of his remarks about the company, but also from refraining from saying too much about the future. Since the railway companies had taken over Pickfords and Carter Patersons, gross receipts had risen from £2,400,000 a year to £8,800,000. The staff now totalled some 12,000 persons, and the profit last year had been £789,000. The British Transport Commission certainly would be adopting a very healthy and promising baby.

On behalf of the railway companies he wished to pay tribute to Mr. Elliott and Mr. Paterson for the work they had done. He also read a letter from Mr. Ernest Bevin, Foreign Minister, in the course of which the latter extended to Mr. Elliott his best wishes on his retirement, and said that he (Mr. Bevin) had always admired Mr. Elliott's organising and managerial ability and the assistance he had given to the trade union side in the organisation of the industry.

Sir James Milne concluded by saying that he could assure the Chairman of the British Transport Commission of the loyal support of the officers and staff of the Hay's Wharf companies in the stupendous task which faced the Commission in the co-ordination of British transport. He hoped that some means might be found whereby the names Pickford and Carter

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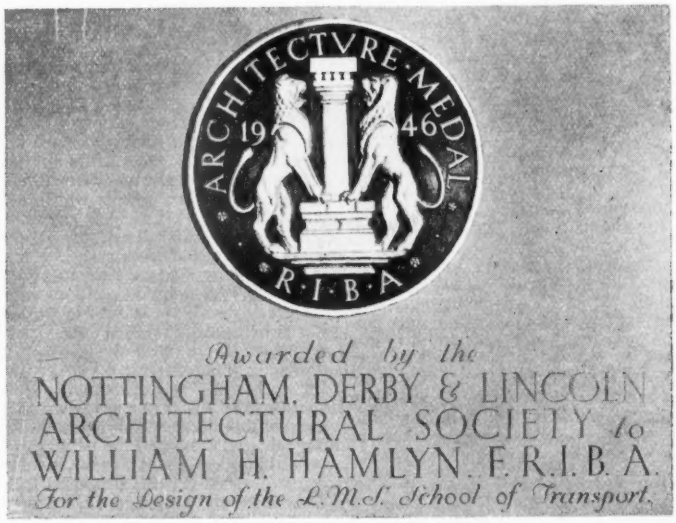
L.M.S.R. School of Transport, Derby



Sir Robert Burrows, Chairman, L.M.S.R., recently placed the plaque reproduced above in the L.M.S.R. School of Transport, Ashbourne Park, Derby, which was designed by Mr. W. H. Hamlyn, F.R.I.B.A. A biographical note on Mr. Hamlyn was given on page 531 of our November 7 issue and a photograph of the building was reproduced on page 535 of the same issue

Paterson could be retained under the new arrangement.

Mr. J. N. Drummond, who proposed the toast of Mr. W. J. Elliott, said that Mr. Elliott had never been satisfied with anything but the best in men or materials, and that that had been the foundation of his success. His staff all wished him well in whatever the future held for him.

Mr. Arthur Deakin, Secretary of the Transport & General Workers' Union, praised the work of Mr. W. J. Elliott, and said that he was a very remarkable man. The representatives of the workpeople's side of the negotiation committees knew of the great contribution which he had made to the establishment of the excellent relationships which existed in the commercial transport industry between management and men.

Sir James Milne then made presentations to Mr. Elliott.

Mr. W. J. Elliott, in expressing his thanks for the gifts, said that he had spent 43 years with the company, and he knew the possibilities of the great organisation which he had helped to build. He was satisfied that if the companies could have been left to govern themselves they would have continued to have made progress. He believed that the progress that they had made had been brought about by the complete understanding which had existed between everyone in the organisation. If the members of the Road Executive, when it was appointed, were men of practical mind, he believed that it would be found that in the future the Hay's Wharf Cartage companies would be the key pin of British road transport.

Mr. N. D. Fawkner proposed the toast of the Chairman, and said that the new General Manager would have no easy task in following such a highly dynamic and popular a personality as his father. It was a position which called for many qualities, but the long training which Mr. Harold Elliott had had with the companies, as well as his wartime experience at Ministries, and as Director of Transport at the Middle East Supply Centre, had well fitted him for the task on which he was now entering. The Hay's Wharf companies had had a good deal of experience of carrying awkward loads, and it might well be that they would find themselves carrying an awkward Government.

Mr. Harold Elliott, responding to the toast, said that he was very proud to follow in the footsteps of such a great transport man as his father and to lead such a magnificent team. He also paid tribute to Mr. Shirley James, who had recently retired, and who had been not only his boss in earlier days, but was also a very old friend. Whatever the future might bring, they would uphold the high standards set up by these two fine companies.

Mural Panels at Hastings, Southern Railway

On December 10, the Mayor of Hastings, Alderman F. W. Chambers, unveiled a series of mural panels in the booking hall at Hastings Station, Southern Railway. There are eight of these panels, which cover the walls of the octagonal-shaped hall from tiling level to ceiling; each panel is 25 ft. long and 8 ft. deep.

The provision of these panels emanates from a suggestion made a year ago by the Borough of Hastings that a permanent display of flowers and plants should be provided in the booking hall. The Southern Railway appreciated the desire to incorporate in the hall some welcoming display to catch the eye of the visitor, and arranged for the panels to be prepared. They are not only attractive, but will serve as a permanent reminder of the long years of happy co-operation between the company and the County Borough of Hastings.

The panels themselves have been designed to give the impression of a tapestry. The first wall shows the landing of William the Conqueror, which was taken from the Bayeux Tapestry, and which suggested the style for the remainder. Other panels tell something of the story of Hastings from its early days up to its present position as one of the leading summer and winter pleasure resorts of the South Coast.

The castle is depicted, together with other buildings, old and new; while the development of transport is shown from the days of the early steam engine to the modern electric and steam trains of the Southern Railway. The coat of arms of Hastings and St. Leonards, together with that of the Southern Railway, flank each side of the window above the exit.

The panels were designed and executed by Miss Kay Stewart.

CHRISTMAS HOLIDAY TRAIN SERVICES.—The G.W.R. will duplicate the "Cornish Riviera" and the "Torbay Express" on Christmas Eve, and will run a relief to the 4.30 p.m. Paddington-Plymouth train. Sunday services will operate on Christmas Day and Boxing Day.

Questions in Parliament

Heysham-Belfast Steamer Service

Sir Ronald Ross (Londonderry—C.) on December 1 asked the Minister of Transport whether the R.M.S. *Duke of York* which had completed her refit would be employed on the Heysham-Belfast service in time for the Christmas holiday traffic.

Mr. L. J. Callaghan (Parliamentary Secretary, Ministry of Transport) stated in a written answer: Yes.

Reserved Compartments

Mr. F. J. Erroll (Altrincham & Sale—C.) on December 1 asked the Minister of Transport how many railway compartments had been reserved for Ministers to travel between London and Gravesend during the campaigning period of the recent by-election.

Mr. L. J. Callaghan stated in a written answer: Three. I understand that 13 members of the public travelled in one of them, whilst a second was cancelled.

Workmen's Tickets

Major E. A. Bramall (Bexley—Lab.) on December 1 asked the Minister of Transport if he would take steps to cause the railway companies to remove the anomaly that, whereas all other workers who worked staggered hours might now purchase workmen's tickets, that privilege was still denied to Post Office workers.

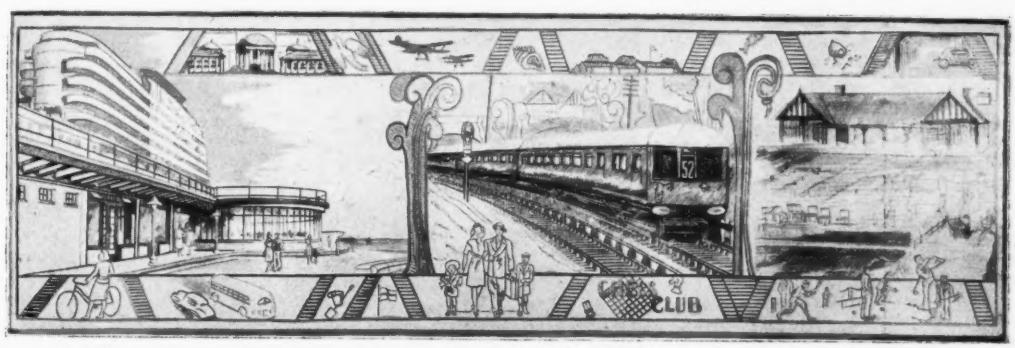
Mr. L. J. Callaghan, in a written answer, stated: Certain extensions are being made in the arrangements for the issue of workmen's tickets outside the normal hours on the main-line railway services and the railway, tramway, and trolley vehicle services of the London Passenger Transport Board, and a statement is attached to this answer. Post Office workers complying with the stated conditions will be able to get these tickets. I regret that any wider extension of the arrangements would be impracticable.

The following is the statement:—

As a temporary measure during the spreading of the industrial electricity load, the following extended arrangements for the issue of workmen's tickets outside the normal hours will be applied, from the earliest practicable date, on the main-line railway services and the railway, tramway, and trolley vehicle services of the London Passenger Transport Board.

Workmen's tickets will be issued on the above-mentioned services on weekdays and Sundays, on production of a card of identity issued or authorised by the railways or the Board, and signed by their employer, to workmen coming within the categories of artisans, mechanics, and labourers who are

Mural "Tapestry" Panels in Hastings Booking Hall



A Southern Electric train appears in one of a series of panels depicting the history of Hastings since the Norman Conquest. *(See article above)*

required to work shifts or regular turns of duty commencing at any time of the day.

Workmen's tickets will also be issued on the above-mentioned services to other workers if (1) they are required, as a consequence of approved arrangements to spread the power load, to travel to work outside the normal hours of issue of workmen's tickets on weekdays, or on Sundays; and (2) previously to the introduction of the arrangements to spread the power load, their days and hours of work were such that they could avail themselves of workmen's tickets issued during the normal hours of issue on weekdays.

For this purpose a special card of identity will be necessary. Requests for these cards must be made by the employer to the railway concerned or to the Board, which will require evidence that the workers concerned comply with the above conditions. The necessary printing and preparation of the cards will be completed by the end of December.

Holyhead-Kingstown Steamer Service

Sir Ronald Ross (Londonderry—C.) on December 1 asked the Minister of Transport whether the R.M.S. *Cambria* and *Hiberia* would be used during the Christmas holiday period on the Holyhead-Kingstown route, thus freeing the R.M.S. *Princess Maud* for the proper functions on the Stranraer-Larne route.

Mr. L. J. Callaghan, in a written answer, stated: I am advised that the traffic on the Larne-Stranraer route would not justify an additional vessel. The *Cambria* and the *Hibernia* are being held to supplement the *Princess Maud* on the Holyhead-Kingstown route.

London and Glasgow Trains

Mr. J. H. McKie (Galloway—Ind. C.) on December 8 asked the Minister of Transport if he could state the reason for the consistent late arrival at St. Pancras of the 9.5 p.m. express train from Glasgow (St. Enoch).

Mr. L. J. Callaghan stated in a written answer: In addition to delays due to speed restrictions and other engineering difficulties, the journey time has been increased since November 12 by a diversion from the main route made necessary by the collapse of a bridge at Kildwick in Yorkshire.

Mr. McKie on December 8 also asked the Minister of Transport if he could state the reason for the change in the departure time of the night express from St. Pancras to Glasgow (St. Enoch) from 9.30 p.m. to 9.10 p.m.; and if he was aware that many regular passengers were being seriously inconvenienced by that advance in the schedule.

Mr. L. J. Callaghan in a written answer stated: This train has had to be re-timed to leave 20 minutes earlier in order to allow for speed restrictions made necessary by deferment of track maintenance and work on the tracks. I regret the inconvenience to passengers, but it cannot be avoided.

Railways Valuation and Rating Staffs

Mr. F. W. Skinnard (Harrow—Lab.) on December 1 asked the Minister of Transport whether, in view of the fact that railway companies employed specialised staffs to deal with the valuation and rating of their undertakings whose duties would, as a result of present proposals, in some cases disappear and in others be seriously diminished, he would consult the Minister of Health with a view to the extension of the provisions for payment of compensation to include such employees and officers of the British Transport Commission similarly affected.

Mr. L. J. Callaghan, in a written answer, stated: No. It would not be appropriate to make statutory provision for compensation in such cases of indirect injury.

Railway Revenues

Captain R. J. Gunter (Essex South East—Lab.) on December 8 asked the Minister of Transport if the estimate of £9 million net revenue for the four main-line railway companies for the year 1947, given on page 26 of Command Paper 7161, was likely to be exceeded.

Mr. L. J. Callaghan in a written answer stated: No. Present indications are that the net revenue will fall considerably short of this estimate.

Wagon Repairs

Mr. David Griffiths (Rother Valley—Lab.) on December 8 asked the Minister of Transport what repairs were needed to the large number of goods wagons standing on the Hull and Barnsley line between Thurnscoe and Wath-on-Dearne.

Mr. L. J. Callaghan in a written answer stated: All kinds of repairs. Most of the wagons have now been moved to shops and the rest will follow in a short time.

Mr. F. Longden (Birmingham, Deritend—Lab.) on December 8 asked the Minister of Transport why, in view of the success of his appeal for a quick turn-round of wagons, some 130 wagons had been allowed to stand idle, for about two months, on the line between Stratford-on-Avon and Alcester; and what he intended to do about it.

Mr. L. J. Callaghan stated in a written answer: These wagons need heavy repairs and will be moved into repair workshops as soon as capacity is available.

North of Scotland Goods Transport

Mr. Hector Hughes (Aberdeen North—Lab.) on December 8 asked the Minister of Transport if he was aware that the railways to and from the North of Scotland were unnecessarily overburdened by carriage of goods for, and from, that area which could be delivered by sea at, and from, Scottish ports; that those ports were ready and willing to deal with all such Scottish traffic; that it was desirable in the interest of both ports and railways that those ports should be fully used; and would he take steps to rectify the present practice.

Mr. L. J. Callaghan stated in a written answer: It is the Government's policy to relieve rail transport by encouraging the use of ports nearest the destination or inland origin of goods and by transferring traffic from rail to coastwise shipping. This has been done with marked success, especially in the case of coal, but I shall be glad to consider any specific complaints.

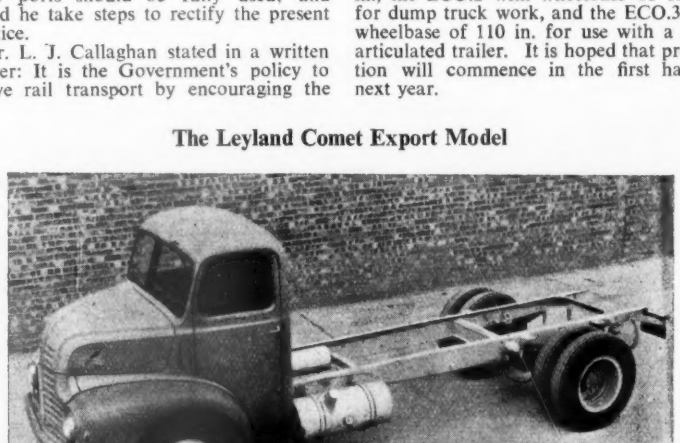
Rural Bus Services

Major P. Asterley Jones (Hitchin—Lab.) on December 8 asked the Minister of Transport if he would arrange for coaches to be hired for the purpose of supplementing bus services in rural areas, wherever those were inadequate.

Mr. L. J. Callaghan in a written answer stated: Bus operators are aware of this method of adding to their services, and a number of them are hiring vehicles.

THE LEYLAND COMET.—As a post-war policy Leyland Motors Limited is concentrating to a far greater extent on the export market than previously, and the new Comet truck, which was recently on view to the technical press, is essentially an export model intended to meet a definite overseas market, though it is hoped that a modified version eventually will be available for the home market. The carrying capacity of the two-axle model with diesel engine is up to a maximum of 6/7 tons, and unladen weight is a little over 3 tons. The Comet has a direct-injection engine of 75 h.p. and a five-speed gearbox; for those who prefer the petrol engine unit, a six-cylinder engine of the same capacity, which develops 100 h.p. at 2,400 r.p.m., is interchangeable with the diesel engine unit. The frontal appearance is unusual, as the familiar Leyland radiator has been dispensed with, and the concealed-stack type adopted so as to appeal to the overseas market. The cab is semi-forward control type, as it was felt to give the best compromise between platform length, weight distribution, engine accessibility, visibility, and cab comfort, particularly in tropical conditions. The Comet is offered on three different wheelbases, each of which can be supplied with either left- or right-hand steering. These models are the ECO.1, a 2-axle truck with wheelbase of 170 in., giving platform length of 186 in., the ECO.2 with wheelbase of 125 in. for dump truck work, and the ECO.3 with wheelbase of 110 in. for use with a semi-articulated trailer. It is hoped that production will commence in the first half of next year.

The Leyland Comet Export Model



The ECO 1L model, long wheelbase machine with left-hand steering and controls

Notes and News

Accountant Required.—An accountant between 24 and 34 years of age is required by the Government of the Gold Coast for the railway department for two tours of 18 to 24 months non-pensionable service. See Official Notices on page 716.

Progress Inspector Required.—A progress inspector is required by the Kenya & Uganda Railways for one tour of from two to four years in the first instance. Locomotive engineering experience and knowledge of carriage and wagon work essential. See Official Notices on page 716.

Port Manager Required.—A port manager, between 30 and 40 years of age, is required by the Malayan Government Railway for three years with prospect of permanency. Candidates must have been trained on a large railway and have held a responsible post at a railway port, preferably where loading and unloading is done partly by lighterage. See Official Notices, page 716.

Richard Thomas & Baldwins Limited.—An interim ordinary dividend of 5 per cent. has been declared on account of the financial year ending April 3 next. In the preceding year a similar interim dividend was declared, and was followed by a final payment of 10 per cent. The board has declared a participating dividend of 3½ per cent. (unchanged) on the 6½ per cent. preference stock.

Road Accidents in October, 1947.—The return issued by the Ministry of Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of October last, shows 499 deaths (compared with 472 in October, 1946), 3,311 seriously injured (compared with 3,191 in October, 1946), and 10,844 slightly injured (compared with 10,514).

Export of Electric Stock to Brazil.—During the next few months the final stages in the completion of what must be one of the largest single export orders placed in this country will be seen on Merseyside. Metropolitan-Vickers Electrical Co. Ltd. has completed manufacture of 90 electric motorcoaches for the Brazilian Railways, and these will be loaded to steamer by the 87-ton crane at Birkenhead. On account of their wide gauge (5 ft. 3 in.) the Mersey Docks & Harbour Board has constructed a special track to accommodate the coaches whilst awaiting shipment, which it is expected will be at the rate of six coaches a month in sets of three. Each coach weighs 56 tons and is 68 ft. 10 in. long.

Signalling Lectures.—A series of lectures on subjects of general signalling interest has been arranged, open to all members of the Institution of Railway Signal Engineers and railway staffs. The lectures will be delivered at the L.P.T.B. Signalling School, Earls Court Station, at 6 p.m. on the following dates in 1948:—January 30, "Principles of the Layout of Signals" (lecturer: Mr. W. H. Challis); February 13, "Principles of Interlocking" (Mr. W. H. Such); February 27, "Mechanical and Electrical Interlocking" (Mr. W. H. Such); March 12, "Principles of Point Detection and Power Point Control Circuits" (Mr. H. W. Hadaway); March 26, "Typical Signal Control Circuits" (Mr. J. P. Loosemore); April 9, "Typical Selection Circuits" (Mr. J. P. Loosemore). An inclusive fee of 10s. will be charged for attendance at the six lectures, and applicants should forward that fee direct to the Honorary Treasurer, Institution of Railway Signal Engineers, 26, Voltaire Road, Clapham, S.W.4, marking the envelope "Signalling Lectures." not later than January 1, 1948 (remittances should be made payable to the Institution of Railway Signal Engineers). Applications will be dealt with in the order received.

Railway Service Christian Union.—The Railway Service Christian Union, of which Mr. Cecil J. Allen is President, celebrated its coming-of-age at a special gathering at Friends House, Euston Road, London, on November 11. This Christian Union, which was founded in 1926, caters for the clerical and administrative staff of the main-line railways and the Railway Clearing House. The chair on this occasion was taken by Mr. J. Taylor Thompson, Engineer (York), L.N.E.R., who read a congratulatory message from the King and Queen in reply to an expression of loyalty.

Barsi Light Railway Co. Ltd.—The report for the year ended March 31, 1947, deals only with the working of 166·7 miles of railway, the Latur Extension having been purchased by the Government of the Nizam of Hyderabad as from March 31, 1946. There was a drop of about Rs.49,800 in gross earnings, for while coaching traffic increased by Rs.346,200, goods traffic fell by Rs.416,500, largely on account of restrictions on the movement of foodstuffs and merchandise. Expenses rose from Rs.1,847,334 to Rs.2,158,612, representing 58·1 per cent. of the gross receipts. The interim dividends, totalling 6½ per cent., have been paid already, and the directors recommend that a balance of £16,634 be carried forward.

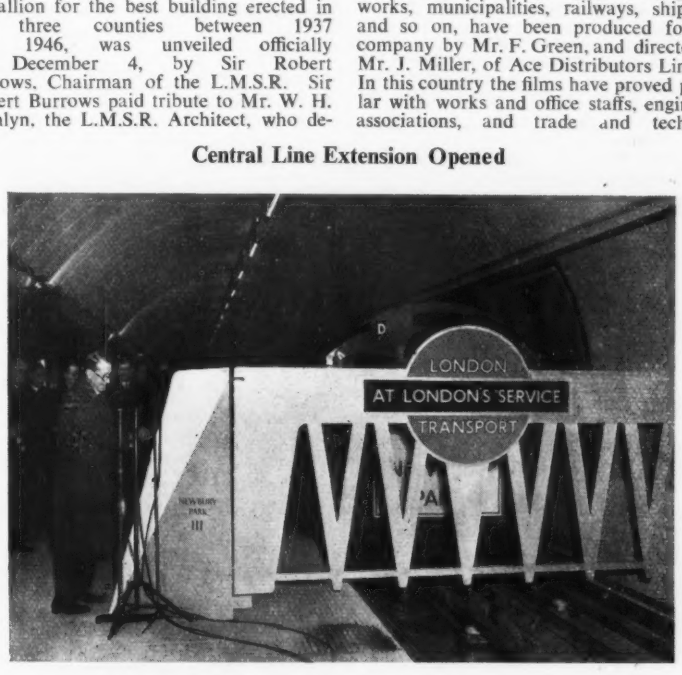
Derby School of Transport Architectural Award.—A plaque commemorating the award to the L.M.S.R. Derby School of Transport of the Nottingham, Derby & Lincoln Architectural Society's bronze medallion for the best building erected in the three counties between 1937 and 1946, was unveiled officially on December 4, by Sir Robert Burrows, Chairman of the L.M.S.R. Sir Robert Burrows paid tribute to Mr. W. H. Hamlyn, the L.M.S.R. Architect, who designed the building, and said that the award would stimulate Mr. Hamlyn and his assistant, Dr. Martin, to further successes in the many schemes they had in hand for the L.M.S.R.

Overland Tour to Malta.—For the benefit of travellers who prefer surface transport, Thos. Cook & Son Ltd. has organised an overland tour to Malta. Passengers travel from London to Calais, and then, in a through sleeping car on the "Simplon-Orient Express," to Rome, *via* Paris, Milan and Florence. The journey is continued from Rome to Naples, where travellers spend the night, and thence by the Tirrenia Shipping Line to Malta, with a stop of 8 hr. at Syracuse. After a fortnight in Malta, the return journey is made over the same route. Three departures are announced monthly, the first having been on December 8.

Southern Railway Ferry Service.—On Monday night, December 15, the last of the Southern Railway links with the Continent was restored, when the company, in conjunction with the French National Railways and the International Sleeping Car Company, re-opened the through train ferry sleeping car service between London and Paris *via* Dover—Dunkerque. There will be three sleeping cars in service in each direction (four on Fridays and Sundays) with a spare car available in Paris and in London. Each car has accommodation for 15 sleeping passengers (3 first class and 12 second class). The journey takes 12 hours, trains leaving London Victoria at 8.30 p.m. and Paris Nord at the same time.

Films for Stewarts and Lloyds Limited.—"Thro' the Mill," a film giving a comprehensive impression of steel tube making in Stewarts and Lloyd's works, and "The Tube Age" showing the world-wide contribution made by Stewarts and Lloyds products to industry, agriculture, public works, municipalities, railways, shipping, and so on, have been produced for the company by Mr. F. Green, and directed by Mr. J. Miller, of Ace Distributors Limited. In this country the films have proved popular with works and office staffs, engineers, associations, and trade and technical

Central Line Extension Opened



Mr. Alfred Barnes, Minister of Transport, performing the opening ceremony at the opening of the new Central Line extension to Wo dford and Newbury Park, described in an article on page 699 of this issue

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

ACCOUNTANT required by the Government of the Gold Coast for the Railway department for two tours of 18 to 24 months non-pensionable service. Salary and overseas pay between £600 and £1,200 a year according to age, experience and war service. Outfit allowance £60. Free passages. Candidates age 24 to 34 years must hold book-keeping and final accounting certificates, be capable of taking charge of a section of a railway accounts office and instructing staff in new or amended simple accounting procedure. Experience in railway accounts though preferred is not essential. Apply at once by letter, stating age, whether married or single and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/N/17137 on both letter and envelope.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

PROGRESS INSPECTOR required by the Kenya and Uganda Railways for one tour of from two to four years in the first instance. Commencing salary according to age and war service in scale £540-£600, plus cost of living allowance. Outfit allowance up to £60. Superannuation Fund. Free quarters and passages. Candidates, under 38, must have served apprenticeship in Workshops of British railways or locomotive builders, and have had good subsequent experience of production methods, and progress planning. Locomotive engineering experience and knowledge of carriage and wagon work essential. Apply at once by letter, stating age, whether married or single and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/N/18349 on both letter and envelope.

DESIGNER, experienced in Electrical Machine Design for Traction Application, required by an Electrical Eng. Firm in the Midlands. Housing accommodation provided. Reply details of training and experience to Box 421, 8, Serle Street, London, W.C.2.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

PORT MANAGER required by Malayan Government Railway for 3 years, with prospect of permanency. Salary, Malayan $850 a month plus cost-of-living allowance $160 a month for married men and $110 for single men. Children's allowances $70 a month for first, $50 for second ($ = 2s. 4d.). Free passages. Candidates, 30 to 40, must have been trained on a large railway and have held a responsible post at a railway port, preferably where loading and unloading is done partly by lighterage. Must have sound knowledge of modern port working, both operating and commercial. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/18348 on both letter and envelope.

STEEL STRUCTURES purchased, dismantled and removed. Industrial steel structures re-built, re-roofed and renovated. Steel factory buildings dismantled, re-erected or adapted on other sites.—BELLMAN HANGARS LIMITED, Terminal House, Grosvenor Gardens, London, S.W.1. Sloane 5259.

schools: they are also being exhibited in Holland, Denmark, and Scandinavia, and special Spanish and Portuguese translations have been prepared for South American distribution. Copies of 35 mm. and 16 mm. are available for sound projection, and are obtainable on loan from Stewarts and Lloyds Limited, Publicity & Publications Department, Brook House, London, W.1.

Higher Charges on Railway-owned Canals.—Tolls, dues, charges in respect of wharfage or cranage, tugging charges and empty boat charges in force on November 29 in respect of railway-owned canals have been increased as from November 30 by 50 per cent.

G.W.R. Express Parcels Service.—The photograph reproduced below shows one of the 2-ton vans, fitted with 258-amp.hr. Exide Ironclad batteries, recently delivered to the G.W.R. for its express parcels service from Bristol Temple Meads Station. This vehicle, made by Douglas (Kingswood) Limited, Bristol, was modified specially for this service, being provided with a tailboard and roller shutter in the rear, and having a floor made of corrugated aluminium with oak inserts.

Northern Ireland Road Transport Board.—The twelfth annual report and accounts of the Northern Ireland Road Transport Board, covering the year ended September 30, 1947, show an operating profit for the year of £307,079 after charging £420,000 for depreciation and reserve for increased cost of renewals. Gross receipts from all operations constituted a record in the undertaking, and amounted to £3,381,683 (including £10,000 released from the bad debts reserve account and not now required) compared with £2,878,853 in the previous year. Expenditure increased from £2,667,091 to £3,074,604 or by 15·28 per cent. (after deducting £30,000 restored from an arrears of maintenance reserve). The number of passengers carried by the board during the year was 80,037,513, an increase of almost 6 million compared with the previous year. Mileage run by the passenger fleet reached 27,790,859, an increase of almost 4 million miles on previous year. Freight traffic amounted to 1,768,926 tons of general merchandise, an improvement on the preceding year of over 33,000 tons. This year has seen the introduction of the 44-hr. week, and the cost of this, together with several other arbitration awards, will in a full year amount to over £160,000, of which approximately £40,000 had fallen in the year to September 30.

G.W.R. Express Parcels Service, Bristol

One of the 2-ton electric vehicles supplied by Douglas (Kingswood) Limited to the G.W.R. for its express parcels service

Release of Wagons: Official Figures.—Official total figures of wagons discharged on British railways during the third weekend (December 6-7) of the special effort are 68,380. This is an increase over 1946 of 26,556 wagons or 63 per cent.

Hunslet Locomotives for Barsi Light Railway.—An order has been placed with the Hunslet Engine Co. Ltd., Leeds, by the Barsi Light Railway, for three superheater 2-8-2 locomotives with bogie tenders. In this locomotive, the cylinders are 15½ in. by 18 in., the coupled wheels, 2 ft. 10 in., the boiler pressure 160 lb. per sq. in., and the estimated weight 38½ tons in the case of the locomotive and 22¾ tons for the bogie tender.

Annual Dinner of the Railway Club.—The annual dinner of the Railway Club was held on Friday, December 12, at Reggiore's Restaurant Euston Road, London, N.W.1, under the chairmanship of the President, Mr. Kenneth Brown, supported by the Vice-President, Mr. Charles E. Lee. In proposing the toast of the club, the President expressed the opinion that, although many familiar features of the individual companies might disappear as the result of the forthcoming nationalisation of the British railway system, the interest of railway enthusiasts would continue as strong as it had been at any time since the foundation of the club in 1899. It was gratifying to record that the club had been invited to assist with the efforts now being made to secure the preservation of railway historical records and relics. The toast of the Officers and the Executive Committee was proposed by Mr. K. Flitch, and responded to by the Hon. Treasurer, Mr. S. C. Hawtrey. The Vice President gave the toast of "Our Guests," and Mr. Colin Duncan responded.